10443

February 1998

Public Comment Period - February 16 to March 18, 1998

IDAHO DEPARTMENT OF HEALTH AND WELFARE
DIVISION OF ENVIRONMENTAL QUALITY

Proposed Plan for

Waste Area Group 1 - Test Area North

Idaho National Engineering and Environmental Laboratory

*(Note: Technical and administrative terms are used throughout this proposed plan. When these terms are first used, they are printed in **bold italics**. Explanations of these terms, and other helpful notes are provided in the margins.*

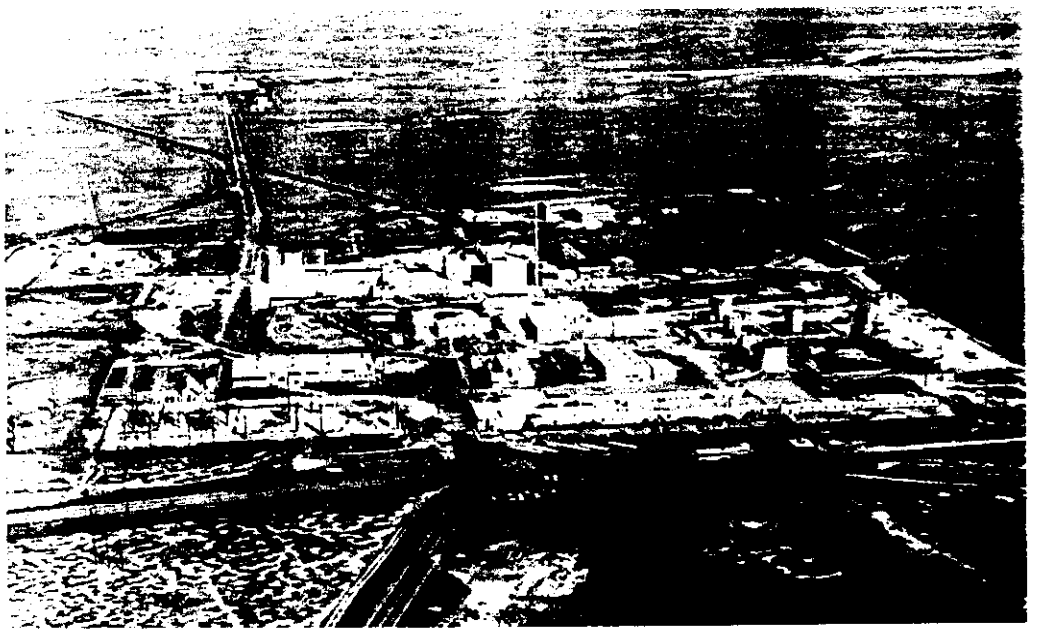

Photo showing Test Area North (TAN).

Introduction

A **Remedial Investigation/Baseline Risk Assessment (RI/BRA)** was performed to determine the nature and extent of contamination at the Test Area North site at the INEEL. *This RI/BRA comprehensively address sites identified in the FFA/CO and those new sites identified during the course of WAG-1 investigations.* Information from the RI/BRA was then used in the **Feasibility Study (FS)** where alternatives for remediating the contamination were developed. The purpose of this proposed plan is to summarize the information evaluated in the two studies and to gain public input on the proposed alternatives.

The Operable Unit 1-10 Comprehensive RI/FS for **Waste Area Group 1 (WAG 1)** was the last **Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)** investigation at Test Area North. Because the investigation was comprehensive, it was done from a waste area group perspective rather than from a site-specific perspective. The types, quantities, and locations of contaminants were identified and the potential impact to human health and the environment from

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Public Meetings/ Briefings*

Idaho Falls
February 23, 1998
Shilo Inn

Boise
February 24, 1998
Boise Public Library

Moscow
February 26, 1998
University Inn

* See page 38 for details.

Briefings for other communities can be arranged by calling the INEEL's toll-free number at (800) 708-2680.

Proposed Plan - document requesting public input on a proposed remedial alternative (cleanup plan).

Remedial Investigation/Feasibility Study (RI/FS) - studies required by CERCLA to characterize the nature and extent of contamination because of past releases of hazardous and radioactive substances to the environment, to assess risks to human health and the environment from potential exposure to contaminants, and to evaluate cleanup actions.

Waste Area Group - one of the 10 administrative management areas established under the INEL Federal Facility Agreement and Consent Order (FFA/CO). The Test Area North is designated as Waste Area Group 1.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) - a federal law that establishes a program to identify, evaluate, and remediate sites where hazardous substances may have been released, leaked, poured, spilled, or dumped into the environment.

(Note: You will see the acronym INEL and INEEL in this plan. The official name of the laboratory was changed in January 1997 from the "Idaho National Engineering Laboratory" to the "Idaho National Engineering and Environmental Laboratory." In some instances, INEL has been used because it is part of the offical titles of some documents produced during that era.)

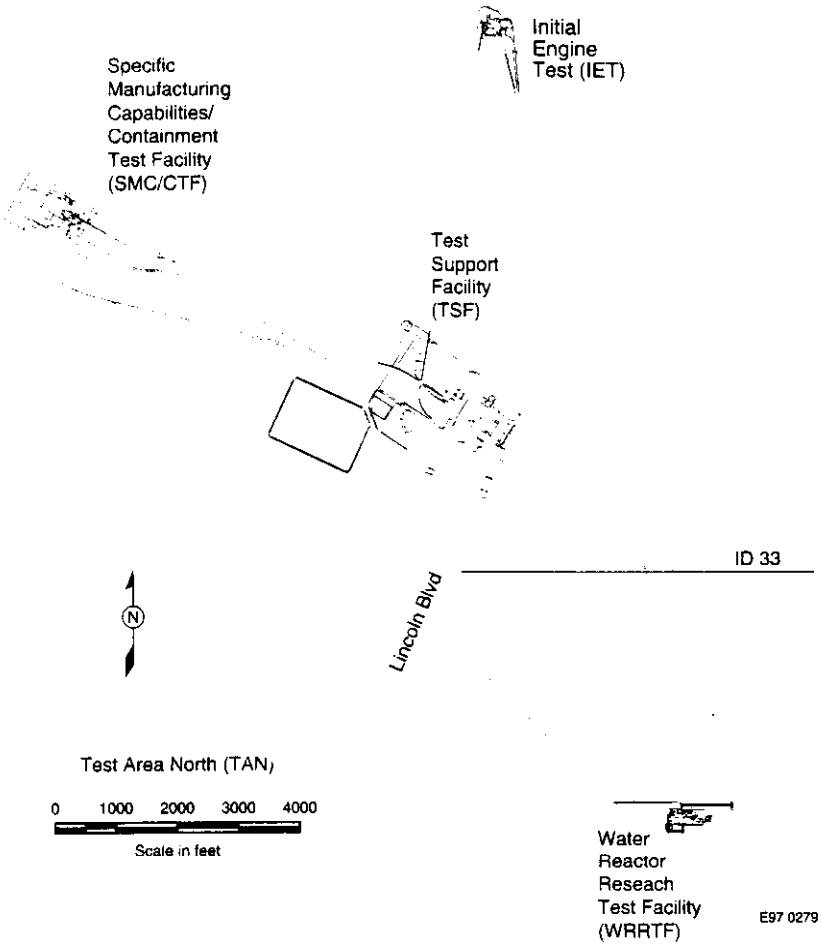

Figure 1. *Location of the Test Area North (Waste Area Group 1) at the INEEL.*

exposure to these contaminants was assessed. The results were compiled in the remedial investigation report (Sections 1 through 8 of the Operable Unit 1-10 Comprehensive RI/FS report). Alternatives for addressing the contamination problem were developed for those sites posing an unacceptable risk. The alternatives are found in the feasibility study report (Sections 9 through 12 of the Operable Unit 1-10 Comprehensive RI/FS report).

This Proposed Plan highlights important information from the RI/FS. It is not a substitute for the RI/FS. If you need more detailed information, you can look at the RI/FS and the **Administrative Record** at the INEEL information repositories listed on page 37.

Agency Involvement

This proposed plan identifies the **preferred alternatives** for controlling risk at Test Area North. This plan is issued by, and in concurrence with the DOE, EPA, and IDHW. The DOE, EPA, and IDHW will be referred to throughout this plan as "the agencies." The agencies will select a final remedy after reviewing and considering information and comments submitted by the public during the public comment period of February 16, 1998, through March 18, 1998.

The status of each of these sites is summarized in the *Comprehensive Remedial Investigation/Feasibility Study for the Test Area North Operable Unit 1-10 at the Idaho National Engineering and Environmental Laboratory* report. This information is contained in the Administrative Record section of the Information Repositories listed on page 36.

Community Acceptance

Community acceptance must be evaluated during the process of remedy selection. The agencies will gauge the degree of community acceptance through open dialogue with citizens and by the comments submitted by the public concerning the remedial alternatives identified in this proposed plan. Though the agencies have proposed preferred alternatives for controlling risk at Test Area North, the public is encouraged to review and comment on all of the alternatives, not just the preferred ones. Additional information supporting the recommended remedial alternatives is available in the WAG 1 Administrative Record at the INEEL Information Repositories. The alternatives will not be selected until public comments have been reviewed and addressed. The agencies will consider all public comments on this proposed plan when preparing the Operable Unit 1-10 **Record of Decision**. Depending on the comments received, the selected remedial action presented in the Record of Decision may differ from the preferred alternatives identified in this plan. All written and verbal comments will be summarized and responded to in the Responsiveness Summary section of the Record of Decision, which is scheduled for completion by September 1998.

INEEL Site Background

The INEEL is an 890-square mile DOE facility on the Eastern Snake River Plain in southeastern Idaho. The Eastern Snake River Plain is a relatively flat, semiarid sagebrush desert. Drainages within the Eastern Snake River Plain recharge the Snake River Plain Aquifer. The top of the aquifer is about 200 feet below Test Area North and is overlain by lava flows and sedimentary interbeds.

The INEEL lands are within the aboriginal land area of the Shoshone-Bannock Tribes. The Tribes have used the land and waters within and surrounding the INEEL for fishing, hunting, plant gathering, medicinal, religious, ceremonial, and other cultural uses.

Test Area North Site Background

Test Area North is in the north-central portion of the INEEL (see Figure 1). Test Area North was constructed between 1954 and 1961 to support the Aircraft Nuclear Propulsion Program. Three full-scale, nuclear-powered aircraft engines were tested until the program was canceled in 1961. From 1962 until the 1970s, the Test Area North Hot Shop (TAN 607) and hot cells were used by the Loss-of-Fluid Test (LOFT) facility and for minor fuel examinations and tests for the Test Reactor Area and the Power Burst Facility. Beginning in 1980, the Hot Shop and the hot cells worked with material from the 1979 Three-Mile Island reactor accident. During the mid-1980s, the final LOFT tests were done. Minor activities are performed at the Initial Engine Test (IET) facility, the LOFT facility, and the Water Reactor Research Test Facility (WRRTF).

Because of confirmed contaminant releases to the environment, the INEEL was placed on the **National Priorities List** in 1989. A Federal Facility Agreement and Consent Order (FFA/CO) was negotiated with the EPA and IDHW to direct cleanup at the INEEL. To better manage remediation work, the INEEL has been divided into 10 waste area groups. Each waste area group in turn has been divided into **operable units**. Test Area North is Waste Area Group 1 (WAG 1).

Administrative Record - documents including correspondence, public comments, Records of Decision, and technical reports upon which the agencies base their remedial action selection.

Preferred Alternatives - the protective, ARAR (see sidebar on page 9) compliant remedy that is judged to provide the best balance of tradeoffs with respect to the five primary balancing criteria (see sidebar on page 12).

Record of Decision - a public document that identifies the selected remedy at a site, outlines the process used to reach a decision on the remedy, and confirms that the decision complies with CERCLA.

How You Can Participate

Whether you are new to the INEEL and are reviewing this type of document for the first time, or you are familiar with the Superfund process, you are invited to:

- **Read** this proposed plan and review additional documents in the Administrative Record file at Information Repository locations listed on page 36; and access documents via the internet at http://ar.inel.gov/home.html
- **Call** the INEEL's toll-free number at (800) 708-2680 to ask questions, request information, or make arrangements for a briefing
- **Attend** a public meeting listed on the cover and on page 38
- **Comment** on this plan at the meeting or submit written comments (see postage-paid comment form on back cover)
- **Contact** state of Idaho, EPA Region 10, or DOE project managers (see pages 7, 9, and 11).

National Priorities List - a formal listing of the nation's hazardous waste sites as established by CERCLA that have been identified for possible remediation. Sites are ranked by the EPA based on their potential for affecting human health and the environment.

Operable Units - an area or areas with distinct characteristics or similar wastes grouped for management efficiency.

Baseline Risk Assessment - an assessment required by CERCLA to evaluate potential risks to human health and the environment. This assessment estimates risks/hazards associated with existing and/or potential human and environmental exposures to contaminants at an area, assuming no remedial action is taken.

Risk - an estmate of the probability that exposure to contamination at a release site will cause cancer development.

Contaminants of Concern (COCs) - radionuclide or nonradionuclide contaminants that pose a risk to human health or the environment and are addressed by the remedial alternatives.

Receptors - someone or something that may receive an exposure to contaminants

WAG 1 is divided into 10 operable units with a total of 94 potential release sites. 10 of the 94 potential release sites pose an unacceptable risk to human health or the environment. The 10 sites that represent unacceptable risk levels have been contaminated with either metals, radionuclides, or a mixture of radionuclides and organics/metals. Two of the sites are also contaminated with low levels of polychlorinated biphenyls (PCBs).

Additional sites are being recommended for No Further Action. Fifty four sites were previously determined by the agencies to be No Further Action sites, or were part of the August, 1995 Record of Decision, *Declaration for the Technical Support Facility Injection Well (TSF-05) and surrounding Groundwater Contamination (TSF-23) and Miscellaneous No Action Sites Final Remedial Action.* The No Further Action status of the sites will be verified as described on page 36 of this proposed plan.

Evaluation of Site Risks

The **baseline risk assessment** included a human health risk assessment and an ecological risk assessment. The baseline risk assessment used data from the remedial investigation and from computer modeling.

Human Health Risk Assessment

The human health evaluation quantified noncarcinogenic health effects and carcinogenic **risk**. The human health risk assessment consisted of two broad phases of analysis: (1) a site and contaminant screening to identify contaminants of potential concern and (2) an exposure route analysis for each **contaminant of concern**. The risk assessment evaluated human health risk from soil ingestion, dust inhalation, volatile organic compound inhalation, external radiation exposure, groundwater ingestion, homegrown produce ingestion, skin absorption, and indoor water use. It is anticipated that access controls will remain in place for at least 100 years so the evaluation of preferred alternatives is based on the 100-year hypothetical residential scenario and the worker scenario during the 100 years.

The contaminants with the greatest potential for causing adverse human health effects [i.e., that pose a risk of greater than 1 in 1,000,000 or a hazard quotient of greater than 1.0] include nine radionuclides, four metals, four organic contaminants, and PCBs. Action to protect human health and the environment are typically initiated for sites posing a risk greater than 1 in 10,000. For risk levels between one in 10,000 and one in 1,000,000, the agencies make a risk management decision about the appropriate level of remedial action required. Cleanup decisions at WAG 1 also are based on minimizing exposures to noncarcinogenic contaminants. In general, some type of action may be required if the human intake concentrations of noncarcinogenic contaminants at a given release site exceed concentrations that produce adverse noncarcinogenic health effects.

Table 1 summarizes the results of the baseline risk assessment for the sites that pose unacceptable risks to human health and the environment.

Ecological Risk Assessment

The ecological risk assessment screened contaminated sites identified in the FFA/CO, and new sites that have been identified since that time. Each release site was identified as either a potential source of contamination, a pathway to ecological **receptors,** or both. The release sites were evaluated using the approach in the *Guidance Manual for*

Conducting Screening Level Ecological Risk Assessments at the INEL. The results of the ecological risk assessment are presented as a range of **hazard quotients** calculated for **functional groups** of ecological species. Because of the uncertainty in the methods used, hazard quotients are only possible indicators of potential risk and should not be interpreted as a final indication of the actual adverse effects to ecological receptors.

Table 1 shows the seven WAG 1 sites with ecological risk greater than threshold levels. The LOFT Disposal Pond and the WRRTF Evaporation Pond were not retained for evaluation in the feasibility study because they did not have a human health risk greater than allowable levels and could not be assessed at population level. These sites will be considered under a site-wide program to ensure they are not posing an unacceptable threat to ecological receptors at a population level. The WAG 10 site-wide ecological risk assessment will incorporate the results of the WAG 1 assessment to evaluate the potential effect of the sites at the population level. As these two sites are near other WAG 1 sites, they have been identified as co-located facilities and will be addressed during facility closure.

Uncertainty

Uncertainty is inherent in each step of the risk assessment process, and detailed discussions of uncertainties are presented throughout the Operable Unit 1-10 Comprehensive RI/FS report. To ensure that risk estimates are conservative, health protective assumptions that envelop the plausible upper limits of human health risk were used. Therefore, the human health risk probably is overestimated in most instances to compensate for numerous uncertainties in the assessment process. The ecological risk similarly incorporated various adjustment factors that were designed to be conservative. Therefore, the ecological risk also is most likely overestimated. Remediation that will reduce human health risk also will help to minimize ecological risk.

Summary of Retained Release Sites

The eight sites with human health risks greater than allowable levels were retained for evaluation in the feasibility study. The retained sites, which are indicated in italics, and the sites posing unacceptable ecological risk are listed in Table 1. Because of similarities in the types of contamination and types of contaminated media, the sites of concern are grouped into four categories: low-level radionuclide-contaminated soils/sediments; nonradionuclide-contaminated soils/sediments; tank contents; and **co-located facilities.**

The radiological and organic contamination in the TSF-05 groundwater plume is also expected to produce unacceptable future risk under a hypothetical future residential scenario. The groundwater contamination is addressed in the Operable Unit 1-07B Record of Decision and will not be evaluated further in this proposed plan. The groundwater remediation is expected to be complete in 30 years. It is assumed that risk from the groundwater contamination will be reduced to acceptable levels once the Operable Unit 1-07B remediation is complete.

Past releases that have not been discovered (e.g., under buildings or piping) and releases from structures, buildings, and co-located facilities at Test Area North also have the potential for producing unacceptable risk and were evaluated in the Operable Unit 1-10 Comprehensive RI/FS. The structures and buildings identified include the Radioactive Parts Security Storage Area (RPSSA) pads, the Hot Shop, and the two

Waste Area Group 1 contamininants of concern

Soil Contamination Area, Soil South of Turntable (TSF-06, Area B)
Cesium-137

Test Area North Disposal Pond (TSF-07)
Cesium-137
Radium-226

Mercury Spill Area (TSF-08)
Mercury

WRRTF-01 Burn Pits
Lead

Technical Support Facility Burn Pit (TSF-03)
Lead

Diesel Fuel Leak (WRRTF-13)
Diesel, Total Petroleum Hydrocarbon (TPH)

V-Tanks (TSF-09/18)
Cesium-137
Metals
Organics
PCBs

PM-2A Tank (TSF-26)
Cesium-137
Metals
Organic
PCBs

Loft Disposal Pond (LOFT-02)
Metals

WRRTF Evaporation Pond
Metals

Hazard quotients - the ratio of contaminant intake concentrations at a release site to concentrations that produce adverse noncarcinogenic (i.e., noncancer causing) human health effects.

Functional groups - subjective assemblages of species carrying similar characteristics demonstrating (1) the potential for contaminant exposure through shared dietary and physical pathways and (2) potential for similar biological response to that exposure.

Co-located Facilities - facilities or structures that are next to or near to WAG-1 sites.

Radioactive Liquid Waste Treatment and Transfer/Storage buildings (TAN-616 and -666), the LOFT Disposal Pond, and the WRRTF Evaporation Pond. The facilities that have been defined as co-located are discussed in this proposed plan as a group; however, further evaluation of these sites will be performed when operations at these facilities cease.

Low-Level Radionuclide-Contaminated Soil/Sediment Release Sites

Soil Contamination Area, Soil South of the Turntable (TSF-06, Area B)

TSF-06, Area B, is an open triangular-shaped soil area bounded by the facility fence on the west and facility roads on the east and south. Surface soils within the site were radioactively contaminated by windblown radioactive particles from the contaminated soil in the PM-2A tank area (TSF-26). Three small areas of contamination remain after previous Operable Unit 10-06 removal actions. One area is close to the railroad tracks. Further excavation at that location would have resulted in damage to the tracks. The other two areas are within a 50 x 500-foot-long strip adjacent to Snake Avenue in the eastern portion of the site. Contamination within the area is suspected of extending beneath Snake Avenue. Calculated risks for the current and future worker and a hypothetical future resident are unacceptable because of external radiation exposure to cesium-137. External radiation exposure is controlled by access restrictions and other DOE procedures.

Test Area North Disposal Pond (TSF-07)

The Test Area North Disposal Pond (TSF-07) is a partially sectioned 35-acre unlined disposal pond southwest of the TSF. Five acres in the northeast corner and on the eastern edge of the pond have been contaminated with radionuclides and metals. The highest levels of contamination are found along the drainage ditch from the inlet basin in the northeast corner of the pond to the main pond along the eastern berm. A small portion (less than 0.5 acre) of the remaining 30 acres of the pond was used to dispose of treated groundwater from the Ground Water Treatment Facility. Sampling of the TSF-07 pond after discharges from the Groundwater Treatment Facility ended found no detectable levels of radionuclides. The active portion of the pond, which is part of the contaminated 5 acres, consists of a 1.5-acre main pond and a 1-acre overflow pond. Historically, the pond received sanitary waste discharge, low-level radioactive waste, cold process wastewater, and treated sewage effluent. Radionuclides and metals appear to have migrated to a depth of 11 feet below ground surface while organics appear to be limited to 5 feet below ground surface. The horizontal extent of contamination is limited to the main and overflow ponds. The calculated risks to current and future workers and a hypothetical future resident are unacceptable because of external radiation exposure to cesium-137 and radium-226. Workers are protected from external radiation exposure by access restrictions and other DOE procedures. The pond is considered a co-located facility because part of it is still active and is permitted for Land Application of Wastewater with the State of Idaho. The active portion of the pond will undergo assessment when operations cease.

Nonradionuclide-Contaminated Soil/Sediment Release Sites

Mercury Spill Area (TSF-08)

The Mercury Spill Area (TSF-08) is near the southwest corner of the TAN-607 building. The area was contaminated in 1958 by a large mercury spill from the Heat

Table 1. *Waste Area Group 1 sites posing unacceptable excess risk to human health or the environment and sites retained for evaluation in the feasibility study.*

	Human Health Risk[a]				Ecological Risk
	Occupational Scenario		Residential Scenario		Hazard Quotient
Contamination Type and Site	Total Cancer Risk	Hazard Quotient	Total Cancer Risk	Hazard Quotient	Unacceptable?
Low-level radionuclide-contaminated soil/sediment					
Soil Contamination Area, Soil South of the Turntable (TSF-06, Area B)	1 in 10,000	0.00001	3 in 10,000	1	No
Test Area North Disposal Pond (TSF-07)	1 in 10,000	0.03	8 in 10,000	3	Yes
Nonradionuclide-contaminated soil/sediment					
Mercury Spill Area (TSF-08)	8 in 10,000,000	0.00001	1 in 10,000	30	Yes
WRRTF-01 Burn Pits (WRRTF-01)	Not available[b]	Not available[b]	Not available[b]	Not available[b]	Yes
Technical Support Facility Burn Pit (TSF-03)	Not available[b]	Not available[b]	Not available[b]	Not available[b]	Yes
Diesel Fuel Leak (WRRTF-13)	Not available[c]	Not available[c]	Not available[c]	Not available[c]	Yes
Tanks					
V Tank Contaminated Soils (TSF-09/18)	8 in 10,000	0.00001	4 in 1,000	1	No
PM-2A Tank Contaminated Soils (TSF-26)	1 in 1,000	0.00001	2 in 1,000	1	No
Co-Located Sites					
LOFT Disposal Pond (LOFT-02)[d]	<1 in 1,000,000	<1	<1 in 1,000,000	<1	Yes
WRRTF Evaporation Pond (WRRTF-03)[d]	<1 in 1,000,000	<1	<1 in 1,000,000	<1	Yes

a. Risks calculated in OU 1-10 RI/BRA
b. The human health risk could not be calculated because toxicity data are not available for lead but is included as it exceeds the EPA guidance level.
c. The human health risk could not be calculated because toxicity data are not available for diesel fuel but is included as it exceeds the EPA guidance level.
d. The ecological risk at the site will be assessed when the pond is closed.

Transfer Reactor Experiment-III engine. A removal action was done in 1995, and the area was backfilled with clean soil. Post-removal sampling showed that low levels of mercury are 4 feet below ground surface. Ingestion of homegrown produce (i.e., fruits and vegetables grown in a home garden) causes an unacceptable risk to a hypothetical future resident.

WRRTF Burn Pits (WRRTF-01)

The WRRTF Burn Pits (WRRTF-01) are approximately 2,700 feet north of WRRTF, outside the facility fence. Waste was burned at the pits from 1958 to 1975. Burn Pit I received both combustible solids and liquids. Burn Pit II received only combustible solids, while Burn Pit III received only combustible liquids. Burn Pit IV received mainly combustible solids and some reportedly noncombustible solids (e.g., automobile parts and metal goods). Minor amounts of combustible liquids may have been buried in Burn Pit IV. The burn pits have been covered with clean soil ranging in

IDAHO DEPARTMENT OF HEALTH AND WELFARE
DIVISION OF ENVIRONMENTAL QUALITY

The Idaho Department of Health and Welfare is one of the three agencies identified in the Federal Facility Agreement, which establishes the scope and schedule of remedial investigations at the INEEL. Correspondence by the Division of Environmental Quality staff concerning this project can be found in the Administrative Record for this project under Operable Unit 1-10.

For additional information concerning the state's role in preparing this proposed plan, contact:

Dean Nygard
Idaho Department of Health and Welfare
Division of Enviromental Quality
1410 N. Hilton
Boise, ID 83706
(208) 373-0285, (800) 232-4635

depth from 0.5 to 9 feet and revegetated. Worker exposures are eliminated by the cover material. No contaminants have been detected in the soils below the clean cover material that would produce a calculated risk of greater than one in 10,000 or a calculated hazard quotient of greater than 1. However, lead has been detected at levels greater than EPA's 400 **mg/kg** residential screening level. The contamination is within the top 10 feet of soil and is considered accessible by a hypothetical future resident.

mg/kg also as parts per million - one part of a contaminant in one million parts of a media, typically water or soil.

Technical Support Facility Burn Pit (TSF-03)

The Technical Support Facility Burn Pit (TSF-03) is located northwest of the Columbia Street gate access, outside the facility fence. The burn pit was used from 1953 to 1958. The pit received refuse, construction debris, and combustible liquids from the Test Area North areas. The site has been covered with 4 to 7.25 feet of clean soil, which eliminates occupational exposures. Subsidence-control has been maintained and vegetation has been naturally reestablished. No contaminants have been detected in the soils below the clean cover material that produce a calculated risk of greater than one in 10,000 or a calculated hazard quotient of greater than 1. However, lead has been detected at concentrations greater than EPA's 400 mg/kg residential cleanup level. The contamination is within the top 10 feet of soil and is considered accessible to a hypothetical future resident.

Diesel Fuel Leak (WRRTF-13)

The Diesel Fuel Leak (WRRTF-13) site was contaminated by leaks from two tanks and a transfer line that ran between the tanks. The tanks and the transfer line have been removed from the site and contaminated soils were removed and disposed of. The excavated areas were backfilled with clean soil but residual contamination in subsurface soils is present. Because some of the contamination is between 5 and 10 feet of the ground surface, the soils are considered accessible to a hypothetical future resident. Human health toxicity information is not available for any of the contaminants detected at the site; therefore, risk for the site was not calculated in the baseline risk assessment. However, evaluation of the post-removal sample results for total petroleum hydrocarbons (TPH) indicates that the maximum TPH concentrations are above the 1,000 mg/kg TPH evaluation standard but below the TPH risk based correction action concentration of 162,000 mg/kg. The maximum TPH concentration detected in the post-removal samples was 35,700 mg/kg. The risk-based TPH concentration is estimated using assumptions that correlate the TPH concentration with the chemical components that make up TPH. Current and future worker exposure to the subsurface contamination is eliminated by the backfill material.

Tank Sites

V-Tank Contents and Contaminated Soils (TSF-09 and TSF-18)

The V-Tanks and associated contaminated soils are in the same area and are grouped together for evaluation. The two sites are in an open area east of the TAN-616 building and north of the TAN-607 building. The TSF-09 site includes three 10,000 gallon underground storage tanks (V-1, -2, and -3). The TSF-18 site includes a 400-gallon underground storage tank (V-9) and a sand filter. The tanks were installed in the early 1950s as part of the system designed to collect and treat radioactive liquid effluents. Tanks V-1, -2, and -3 are approximately 10 feet below ground surface, and Tank V-9 is approximately 7 feet below ground surface. Contaminated soils also are present at the site. The calculated risks to current and future workers and a hypothetical future resident are unacceptable because of external radiation exposure to cesium-137. External radiation exposure to current workers is controlled by access

restrictions and other DOE procedures. The buried tanks contain liquids and sludges contaminated with radionuclides, metals, and organics. Radionuclides contained in the tanks include uranium-235, a fissile material. The risk from these liquids and sludges was not calculated in the Operable Unit 1-10 Comprehensive RI/FS because there is no evidence the tanks have leaked. However, the tank contents were included in the feasibility study because the waste in them must be managed in a manner consistent with other potentially applicable regulations while not allowing releases to the environment. Further evaluation of the uranium-235 will be performed prior to any remediation.

PM-2A Tank Contents and Contaminated Soils (TSF-26)

The PM-2A tanks stored concentrated low-level radioactive waste from the TAN-616 evaporator from 1955 to 1972. The soil above the tanks has been contaminated from spills during waste transfer to the tanks. The contaminated soil area is approximately 70 x 100 feet. Contaminated soil was removed in 1996 as part of the Operable Unit 10-06 removal action; however, post-removal sampling indicated the remaining soil contamination would produce a risk to current and future workers. External radiation exposure to cesium-137 contamination in the soil would cause an unacceptable risk to future workers, however, external radiation exposure to current workers is controlled by access restrictions and other DOE procedures. The buried tanks contain sludge contaminated with radionuclides, organics, and metals.

Investigation Derived Waste

Site characterization and removal have actions generated contaminated soils, debris, sampling equipment, personal protection equipment, and environmental media samples. These waste streams are collectively defined as investigation derived waste. This waste has been disposed of throughout the assessment process. Investigation derived waste currently being stored and any that will be generated during future remedial actions will be disposed of according to the **applicable or relevant and appropriate requirements (ARARs)**.

Co-Located Facilities

Some activities at Test Area North are proximal, or "co-located," to WAG 1 sites. These co-located facilities were analyzed to determine their potential for causing current risk to be underestimated. Based on the analysis, only the Radioactive Parts Service and Storage Area (RPSSA) pads, the Hot Shop facility (TAN 607), and the two Radioactive Liquid Waste Treatment and Transfer/Storage buildings (TAN-616 and TAN-666) were identified as having the potential to produce unacceptable future risk. Also, the LOFT-02 Disposal Pond and the WRRTF-03 Evaporation Pond have shown to pose an ecological risk but not a risk to human health. The facilities are administratively controlled to address any releases or potential release to the environment. The facility risks will be evaluated when the facilities are removed and appropriate remedial actions are performed as required under CERCLA.

The RPSSA buildings (TAN-647 and TAN-648) are two large buildings west of TAN-607 used to store excess materials and waste. Asphalt pads surrounding the buildings cover radioactive-contaminated soil. The site is considered a possible release site because the pads could be disturbed. The facilities are administratively controlled and all material stored on the pads are monitored and surveyed before being moved. No intrusive activities are permitted on the pads without authorization. The RPSSA is currently operating under an interim status Resource Conservation and Recovery Act (RCRA) permit.

The U.S. Environmental Protection Agency is one of the three agencies identified in the Federal Facility Agreement, which establishes the scope and schedule of remedial investigations at the INEEL. Correspondence by the Region 10 staff concerning this project can be found in the Adminstrative Record under Operable Unit 1-10.

For additional information concerning the EPA's role in preparing this proposed plan, contact:

Wayne Pierre
Environmental Protection Agency
Region 10
1200 Sixth Avenue
Seattle, Washington 98101
(206) 553-7261

Applicable or Relevant and Appropriate Requirements (ARARs) - "Applicable" requirements mean those standards, criteria, or limitations promulgated under federal or state law that are required specific to a substance, pollutant, contaminant, act, location, or other circumstance at a CERCLA site. "Relevant and Appropriate" requirements mean those standards, requirements, or limitations that address problems or situations sufficiently similar to those encountered at the CERCLA site such that their use is well suited to that particular site.

The Test Area North Hot Shop facility includes the TAN-607 Hot Shop, the Hot Shop Pool and support areas, and parts of the TAN-607 building. Administrative controls ensure that sufficient water is in the pool to prevent uncovering the stored radioactive waste.

The Radioactive Liquid Waste Treatment building (TAN-616) and the Radioactive Liquid Waste Transfer and Storage building (TAN-666) are part of the system that treated, stored, and transferred radioactive contaminated liquid waste. They are administratively controlled to prevent release of contamination to the environment. The RPSSA buildings will be closed under the **Resource Conservation and Recovery Act** (RCRA).

The LOFT-02 Disposal Pond is an unlined pond that has received industrial, cooling, and sanitary wastewater since 1975. The pond is currently inactive. The INEEL is being evaluated under a site wide program that will ensure the pond is not posing an unacceptable threat to ecological receptors at population levels. Closure of this site will be evaluated to ensure adequacy under CERCLA.

WRRTF-03 is an unlined evaporation pond used to dispose of process water and cooling water from 1983 to the present. The pond replaced the WRRTF-05 Injection Well that was abandoned in 1983. The INEEL is being evaluated under a site-wide program that will ensure the pond is not posing an unacceptable threat to ecological receptors at population levels. Closure of this site will be evaluated to ensure adequacy un CERCLA.

Resource Conservation and Recovery Act- A federal law regulating hazardous waste.

Remedial Action Objectives for Retained Release Sites

Selected remedial alternatives must protect human health and the environment. **Remedial action objectives** guide the choice of remedial action alternatives. The remedial action objectives for the soil pathway are:

Remedial action objectives - the requirements that must be met by any remedial alternative.

- Reduce risk from external radiation exposure from cesium-137 and radium-226 to a total excess cancer risk of less than one in 10,000 for the 100-year hypothetical future resident and the 100-year future occupational worker.
- Prevent direct exposure to lead at concentrations in excess of 400 mg/kg.
- Prevent uptake of mercury that would result in a hazard quotient of greater than 1 for the homegrown produce ingestion exposure route for the 100-year hypothetical future resident.

The remedial action objective for the V-Tanks and PM-2A tanks and the tank contents is:

- Prevent any release to the environment of contaminants of concern in the tank contents.

Remedial action objectives for co-located facilities are:

- Prevent risks at co-located facility sites from exceeding one in 10,000 for all surface exposure routes, and one in 10,000 for groundwater exposure routes, if releases are discovered, or known releases are accessed, prior to the facility being closed.
- Prevent noncarcinogenic hazards at the co-located facility sites from exceeding a hazard quotient of 1 from all exposure routes if releases are discovered or known releases are accessed.

- Remediate decommissioned facilities if a release to the environment is discovered and determined to pose an unacceptable risk to human health.

Summary of Alternatives Evaluated for Retained Release Sites

In the Operable Unit 1-10 Comprehensive RI/FS, treatment technologies for the retained release sites were identified and remedial alternatives (i.e., combinations of technologies) were developed for evaluation. Alternatives were developed for each category of sites or on a site-specific basis. A summary of each alternative is presented below. Details of the technologies considered and the alternative development processes are included in Sections 10 and 11 of the Operable Unit 1-10 Comprehensive RI/FS report. The alternatives and combinations of alternatives were developed using experience from previous cleanups at other INEEL sites with similar characteristics. The National Contingency Plan (NCP) requires that a **No Action** Alternative be evaluated. However, the No Action Alternative would not meet the threshold criteria of compliance with ARARs and overall protection of human health and the environment, and therefore was not considered further as a remedial action alternative.

Low-Level Radionuclide-Contaminated Soil/ Sediment Release Site Alternatives

Sites that produce a risk greater than one in 10,000 with the risk being solely attributable to radionuclide contamination were categorized as low-level radionuclide-contaminated soils/sediments. The two sites in this category are the cesium-137 contamination at the Soil South of the Turntable (TSF-06, Area B) Site and the cesium-137 and radium-226 contamination at the Test Area North Disposal Pond (TSF-07) Site. The following alternatives for meeting the remedial action objectives were considered in the feasibility study portion of the RI/FS.

Alternative 1, "Limited action"

Alternative 1, **Limited Action** includes institutional controls and environmental monitoring. Institutional controls would involve restricting access to sites using fencing, for example. Under this alternative, the environmental monitoring and institutional controls could be expanded to accommodate site-specific concerns. In addition, 5-year site reviews would be conducted to evaluate the effectiveness of the institutional controls and the need for further environmental monitoring, or additional control measures as applicable.

Alternative 2, "Containment Alternatives"

Alternative 2 includes two containment alternatives.

- 2a, Native Soil Cover: A layer of native INEEL soil with surface vegetation, rock armor, or other surface cover to control surface exposures to subsurface radionuclides.
- 2b, Engineered Barrier: Multi cap of multiple layers of native geologic materials to control surface exposures to subsurface radionuclides, and inhibit biotic intrusion.

The **U.S. Department of Energy** is one of the three agencies identified in the Federal Facility Agreement, which establishes the scope and schedule of remedial investigations at the INEEL.

Written comments can be submitted to the **U.S. Department of Energy Idaho Operations Office**, and addressed to:

Mr. Jerry Lyle
Assistant Manager
Office of Program Execution
P.O. Box 2047
Idaho Falls, ID 83403-2047

For additional information regarding the Environmental Restoration Program at the INEEL, call (800) 708-2680 or (208) 526-4700.

No Action - no remediation as a result of this comprehensive investigation.

Limited Action - no remediation except for institutional controls and environmental monitoring.

Low-Level Radionuclide-Contaminated Site Alternatives

Alternative 1 "Limited action"

- TSF-06, Area B
- TSF-07

Alternative 2a, "Native Soil Cover"

- TSF-07

Alternative 2b, "Engineered Barrier"

- TSF-07

Alternative 3a, "Excavation and On-Site Disposal,"

- TSF-06, Area B
- TSF-07

Alternative 3b, "Excavation and Off-Site Disposal."

- TSF-06, Area B
- TSF-07

Evaluation Criteria

Threshold Criteria:

1. **Overall Protection of Human Health and the Environment** addresses whether a remedy provides adequate protection of human health and the environment and describes how risks posed through each exposure pathway are eliminated, reduced, or controlled through treatment, engineering controls, or institutional controls.
2. **Compliance with Applicable or Relevant and Appropriate Requirements** (ARARs) addresses whether a remedy will meet all of the ARARs under federal and state environmental laws and/or justifies a waiver.

Balancing Criteria:

3. **Long-term Effectiveness and Permanence** refers to expected residual risk and the ability of a remedy to maintain reliable protection of human health and the environment over time, once cleanup goals have been met.
4. **Reduction of Toxicity, Mobility, or Volume through Treatment** addresses the degree to which a remedy employs recycling or treatment that reduces the toxicity, mobility, or volume of the contaminants of concern, including how treatment is used to address the principal threats posed by the site.
5. **Short-term Effectiveness** addresses any adverse impacts on human health and the environment that may be posed during the construction and implementation period and the period of time needed to achieve cleanup goals.
6. **Implementability** is the technical and administrative feasibility of a remedy, including the availability of materials and services needed to implement a particular option.
7. **Cost** includes estimated capital and operation and maintenance costs, expressed as net present-worth costs.

Modifying Criteria:

8. **State Acceptance** reflects aspects of the preferred alternative and other alternatives that the state favors or objects to, and any specific comments regarding state ARARs or the proposed use of waivers.
9. **Community Acceptance** summarizes the public's general response to the alternatives described in the proposed plan and in the remedial investigation/ feasibility study, based on public comments received.

Potential exposure pathways to human or environmental receptors can be eliminated by isolating contaminants. Human health risk are predicted to attain acceptable levels within 100 years because of radionuclide decay. Any containment must therefore have a design life of at least 100 years. The functional life of a particular cover is based on controlling erosion, subsidence, infiltration, and biological intrusion. The materials used for construction are also a factor. The native soil cover would reduce the potential for human exposure to site contaminants but would be less effective than an engineered barrier for preventing biological intrusion and would offer a lesser degree of permanence. Institutional controls are assumed to remain in effect for at least 100 years. Institutional controls are the same as for**Alternative 1, "Limited action."** The need for further environmental monitoring would be evaluated by the agencies during subsequent 5-year reviews.

Alternative 2a, "Native Soil Cover," and **Alternative 2b, "Engineered Barrier,"** were not considered for the Soil Contamination Area, Ditch site (TSF-06, Area B), because contamination is assumed to exist under Snake Avenue and because several structures are adjacent to the contaminated area. Radionuclides are assumed to be under the road because it was repaved during the period the releases occurred.

Alternative 3, "Excavation and Disposal Alternatives"

Alternative 3 has two removal and disposal alternatives using conventional construction equipment to excavate and dispose of contaminated soil. **Alternative 3a, "Excavation and On-Site Disposal,"** involves excavating contaminated soils and transporting it to an acceptable INEEL on-site soil repository for disposal. Verification sampling would be used to ensure that all contamination at concentrations exceeding remediation goals was removed. The excavated areas would be backfilled with clean soil after excavation. Institutional controls would not be required because all contamination would be removed and all exposure pathways would be eliminated.

Alternative 3b, "Excavation and Off-Site Disposal" is the same as Alternative 3a except the excavated material is disposed of off-site. Compliance with appropriate waste characterization, transportation, and possible treatment requirements would be required under this alternative.

Evaluation of Low-Level Radionuclide-Contaminated Soil/ Sediment Release Site Alternatives

The alternatives were evaluated using seven of the nine evaluation criteria listed in the sidebar. Community acceptance will be evaluated following the end of the public comment period. For more information on how these criteria were evaluated in the feasibility study process, refer to Section 12 of the Operable Unit 1-10 Comprehensive RI/FS report.

Overall Protection of Human Health and the Environment

Alternative 1, "Limited action," meets the remedial action objectives for the sites but would require land-use restrictions preventing residential development. **Alternative 3a, "Excavation and On-Site Disposal,"**and **Alternative 3b, "Excavation and Off-Site Disposal,"** provide effective long-term protection of human health and the environment but at the expense of short-term protection for radiological site workers. Both containment alternatives (2a and 2b) provide effective short-term and long-term protection of human health and the environment with relatively minor differences. The design lives for the two covers are roughly equivalent but **Alternative 2b, "Engineered Barrier,"** would provide more resistance

to erosion and to human and biotic intrusion than **Alternative 2a, "Native Soil Cover."**

Compliance with Applicable or Relevant and Appropriate Requirements

The alternatives would likely meet the potential ARARs except for those referenced in Footnote b of Table 3, and the various controls **to be considered** (TBCs). After the institutional control period, TBCs would not be met because no such controls would be implemented after the control period. All alternatives, except as noted in Footnote b, are ranked equally for compliance with ARARs. The ARARs identified in the Operable Unit 1-10 Comprehensive RI/FS report are shown in Table 2.

Long-Term Effectiveness and Permanence

Alternative 3a, "Excavation and On-Site Disposal," and **Alternative 3b, "Excavation and Off-Site Disposal,"** provide the highest degree of long-term effectiveness and permanence because contaminated soil and debris would no longer exist at the site. **Alternative 1, "Limited action"**; **Alternative 2a, "Native Soil Cover"**; and **Alternative 2b, "Engineered Barrier"**; are ranked lower than Alternatives 3a and 3b because long-term maintenance and monitoring is required. Alternative 2b likely would provide more resistance to erosion and human and biotic intrusion than Alternative 2a.

Reduction of Toxicity, Mobility, or Volume Through Treatment

None of the alternatives involve treatment. Reduction in contaminant mobility would be approximately the same under **Alternative 2a, "Native Soil Cover," Alternative 2b, "Engineered Barrier," Alternative 3a, "Excavation and On-Site Disposal,"** and **Alternative 3b, "Excavation and Off-Site Disposal." Alternative 1, "Limited action,"** would affect contaminant mobility the least.

Short-Term Effectiveness

Alternative 1, "Limited action,"is the ranked highest because existing management practices protect the health and safety of workers. **Alternative 2a, "Native Soil Cover,"** and **Alternative 2b, "Engineered Barrier,"** are the next highest ranked. These alternatives are considered effective because the low-level radionuclide-contaminated soils/sediments are not located near inhabited areas and no public roads are in the vicinity. No significant impacts are anticipated to worker and communities surrounding the site. No additional environmental impacts would result from these alternatives. Alternatives 2a and 2b are considered equally effective for short-term protection. The exposure risk to workers during native soil cover construction would be minimal and is independent of the cover design. Personal protective equipment and adherence to health and safety protocols would minimize exposures during construction activities. Existing clean soil and initial foundation layers would likely provide sufficient shielding to reduce direct exposure to workers to acceptable levels. Environmental impacts are considered minimal and result primarily from soil cover construction activities. Fill material placed as a soil cover foundation would prevent contaminant migration to the surrounding environment in addition to providing shielding for workers.

Alternative 3a, "Excavation and On-Site Disposal," and **Alternative 3b, "Excavation and Off-Site Disposal,"** are considered the least effective for short-term protection. The risk to workers resulting from direct exposure to the contaminated soil and debris is considered more significant than with other alternatives. Environmental impacts would be minimized by controlling dust during excavation and transportation.

Table 2. *Compliance applicable or relevant and appropriate requirements (ARARs) and to be considered controls (TBCs) for Waste Area Group 1 sites.*

Statute	Citation
Idaho Hazardous Waste Management Act	IDAPA 16.01.05.004 IDAPA 16.01.05.005 IDAPA 16.01.05.006 IDAPA 16.01.05.007 IDAPA 16.01.05.008 IDAPA 16.01.05.009 IDAPA 16.01.05.010 IDAPA 16.01.05.011
Toxic Substances	IDAPA 16.01.01.161
National Pollutant Discharge Elimination System	40 CFR 122.26
Toxic Substances Control—PCBs[a]	40 CFR 761
Disposal of PCB Containers after Remedial Action	40 CFR 761.60(c)
Evaluate Federal Projects for Impact to Endangered or Threatened Species or Critical Habitats 50 CFR 402.12	50 CFR 402.12
Evaluate DOE Projects for Potential Floodplain and Wetland Impact	10 CFR 1022
Idaho Fugitive Dust Emissions	IDAPA 16.01.01.650 and .651
Hazardous Waste Determination	40 CFR 262.11
Idaho Water Quality	IDAPA 16.01.02.299(5)(a) and (b)
Idaho Ground Water Quality Rule	IDAPA 16.01.11.200
NESHAPS—Radionuclide Emissions from DOE facilities (other than Radon-222 and Radon-220 at DOE Facilities-Emission Standard)	40 CFR 61.92
Rules for the Control of Air Pollution in Idaho (Air Toxins Rules) Toxic Air Emissions	IDAPA 16.01.01585 IDAPA 16.01.01586 IDAPA16.01.01.210
National Historic Preservation Act	16 USC 470 et seq.
Storm Water Discharges	40 CFR 122.26
Prevention of Significant Deterioration of Air Quality	IDAPA 16.01.01581
Prevention of Significant Deterioration of Air Quality	IDAPA 16.01.01581
To be considered (TBC) Though not ARARS, the following have been included for completeness in order to make a more informed remedial action decision.	
Environmental Protection, Safety, and Health Protection Standards	DOE Order 5480.4
Radioactive Waste Management	DOE Order 5820.2A
Radiation Protection of the Public and Environment	DOE Order 5400.5

a. Chemical destruction of PCBs may be utilized as an alternative treatment technology as allowed under 40 CFR 761.60 (e) for TSF-09/18 alternative 3.

Implementability

Each of the alternatives is technically implementable except for the containment alternatives at the Soil Contamination Area, Ditch (TSF-06, Area B). **Alternative 3a, "Excavation and On-Site Disposal,"** and **Alternative 3b, "Excavation and Off-Site Disposal,"** are moderately difficult to implement because of safety considerations and administrative constraints; however, the individual technologies specified for these alternatives are available and have been demonstrated. Alternative 3b may be more difficult to implement than Alternative 3a because of the difficulties with off-site transportation of contaminated soils.

Alternative 2a, "Native Soil Cover," and **Alternative 2b, "Engineered Barrier,"** are relatively equal. Alternative 2a may be slightly easier to implement because it is simpler than Alternative 2b. However, both designs are straightforward, and significant construction experience has been developed at the INEEL. As noted previously, Alternatives 2a and 2b are not considered implementable for the Soil Contamination Area, Ditch (TSF-06, Area B), because contamination is assumed to exist under Snake Avenue and because several structures are adjacent to the contamination area.

Alternative 1, "Limited action," is easily implemented and would result in minor changes to the existing conditions at the site. Alternative 1, therefore, is the most implementable alternative.

Cost

The estimated capital and maintenance costs for each site are shown in the sidebar. The costs are **net present value** (NPV).

Comparative Analysis of Alternatives for Low-Level Radionuclide-Contaminated Soil/Sediment Release Sites

Table 3 provides a summary of the comparative analysis among the candidate alternatives for low-level radionuclide-contaminated soil/sediment sites. Relative rankings were assigned to each alternative based on the various evaluation criteria.

Preferred Alternatives for the Low-Level Radionuclide-Contaminated Soil/ Sediment Sites

The preferred alternative for the Soil Contamination Area, Soil South of the Turntable (TSF-06, Area B) is**Alternative 3a, "Excavation and On-Site Disposal."** For the TSF-06 site, **Alternative 1, "Limited action,"**results in a ranking similar to Alternative 3a and has a lower cost. However, Alternative 3a promotes consistency with previous removal actions at Test Area North and consolidates low-level radionuclide-contaminated soil/sediments in a centralized repository. Long-term monitoring and institutional controls would not be required at these sites because the contamination would be removed.

The preferred alternative for the Test Area North Disposal Pond (TSF-07) is **Alternative 1. "Limited Action."** The alternative was selected based on the fact that, while radium-226 was detected in the pond sediments at concentration levels that result in unacceptable risk to human health, it is highly probable that the detections represent natural occurring concentrations rather than being a result of past discharges to the pond. Additionally, this alternatives ability to meet ARARs and its ranking is based on the level of radionuclides being below background concentrations. Implementation of Alternative 1, however, is contingent upon confirming that levels of radium in the pond sediments do in fact represent naturally occurring concentrations.

TSF-06 Comparative Cost Analysis

Alternative 1, "Limited action"	
Capital Costs	$632,396
O&M* Costs	$847,407
Total Costs	$1,479,803
Alternative 3a, "Excavation and On-Site Disposal"	
Capital Costs	$2,474,519
O&M* Costs	none
Total Costs	$2,474,519
Alternative 3b, "Excavation and Off-Site Disposal"	
Capital Costs	$5,127,746
O&M* Costs	none
Total Costs	$5,127,746

*Operation and Maintenance

TSF-07 Comparative Cost Analysis

Alternative 1, "Limited action"	
Capital Costs	$750,905
O&M* Costs	$882,885
Total Costs	$1,633,790
Alternative 2a, "Native Soil Cover"	
Capital Costs	$4,019,332
O&M* Costs	$1,625,201
Total Costs	$5,644,533
Alternative 2b, "Engineered Barrier"	
Capital Costs	$3,165,711
O&M* Costs	$1,363,207
Total Costs	$4,528,918
Alternative 3a, "Excavation and On-Site Disposal"	
Capital Costs	$20,939,553
O&M* Costs	none
Total Costs	$20,939,553
Alternative 3b, "Excavation and Off-Site Disposal"	
Capital Costs	$54,012,037
O&M* Costs	none
Total Costs	$54,012,037

Table 3. *Summary of comparative analysis of remedial action alternatives for low-level radionuclide-contaminated soil/sediment sites.*[a]

Citation	Alternative				
	1	2a	2b	3a	3b
Overall protection	Yes	Yes	Yes	Yes	Yes
Compliance with applicable or relevant and appropriate requirements (ARARs)	Yes[b]	Yes	Yes	Yes	Yes
Long-term effectiveness	5	3	4	5	5
Reduction of toxicity, mobility, or volume through treatment	2	2	3	3	3
Short-term effectiveness	5	4	4	3	3
Implementability	5	4	3	3	2
Cost[c]	–	–	–	–	–

a. Yes or No indicates that the alternative either does or does not satisfy the threshold criterion. Numeric scores reflect a relative ranking of each alternative. A score of 5 indicates that the alternative has a high relative ranking, and a score of 1 indicates that the alternative has a low relative ranking. Positive responses on the first 2 criterion and the relative number of 5 scores were used in part to select preferred alternatives.

b. The ability of this alternative to meet ARARs is based on radionuclide concentrations being below natural occurring concentrations.

c. The comparative analysis for the cost of each alternative by site is presented separately because each site was not evaluated for all alternatives.

This will be accomplished through the performance of a sampling and analysis program with the risk being re-assessed base on the new data. If, after evaluation of the analytical results against naturally occurring concentration levels and performance of the risk assessment, radium levels are found to be above naturally occurring concentrations or above acceptable risk based levels, the preferred alternative will be Alternative 3a. Although Alternative 3a is not the highest ranked alternative, it is the most permanent solution and is the most cost-effective. The other alternatives for the TSF-07 site result in rankings similar to Alternative 3a and, except for Alternative 3b, have a lower cost. However, selection of Alternative 3a promotes consistency with previous removal actions at Test Area North and consolidates low-level radionuclide-contaminated soil/sediments in a centralized repository. Long-term monitoring and institutional controls would not be required at this site because the contamination would be removed.

Nonradionuclide-Contaminated Soil/ Sediment Release Site Alternatives

Because of differences in the types of contamination at these sites it was not appropriate to evaluate all of the alternatives for every site because select alternatives address only one type of contamination. The sites for which the alternative was considered are highlighted in the sidebar.

Alternative 1, "Limited Action"

Alternative 1 involves no remedial action. Limited action includes institutional controls and environmental monitoring. Institutional controls would involve restricting access to sites using fencing, for example. Under this alternative, the environmental monitoring and institutional controls could be expanded to

accommodate site-specific concerns. In addition, 5-year site reviews would be conducted to evaluate the effectiveness of the institutional controls and the need for further environmental monitoring, or additional control measures as applicable.

Alternative 2, "Native Soil Cover"

Clean soils with surface vegetation or rock armor would be added above grade to bring the total thickness above contamination to 10 feet. At that depth the residential exposure pathway no longer exists. Environmental monitoring would also be done and access restriction may have to be maintained. Five-year reviews would evaluate the effectiveness of the cover and the need for additional monitoring.

Alternative 3, "Excavation and Off-Site Disposal"

Contaminated soils would be removed to a maximum of 10 feet or the maximum depth at which contaminant concentrations exceed remediation goals, whichever is less. The contaminated soils would be disposed of off-site at a RCRA-permitted facility. Clean soil that may cover the zone of contamination would be stockpiled on-site and placed back in the excavation when the contaminated soil has been removed. Additional clean soil from an uncontaminated area of the INEEL would be used to fill the excavation to grade. Verification sampling would be required. Institutional controls would not be required because all contamination would be removed and all exposure pathways would be eliminated.

Alternative 4, "Removal and Treatment Alternatives"

Under **Alternative 4a, "Excavation and Treatment by Thermal Retort Off-Site," Alternative 4b, "Excavation and Soil Washing On-Site,"** and **Alternative 4c, "Excavation and Land Farming,"** contaminated soils would be excavated to a maximum of 10 feet or to the maximum depth at which contaminant concentrations exceed remediation goals (whichever is less). Each alternative uses conventional construction equipment to excavate contaminated soils. Clean-soil cover at the sites would be removed and stockpiled so that contaminated soils would be accessible. Under Alternative 4a, the contaminated soils at the Mercury Spill Area (TSF-08) would be treated by thermal retort at an off-site location. Under Alternative 4b, lead-contaminated soils at the WRRTF Burn Pits (WRRTF-01) and the Technical Support Facility (TSF-03) would be treated on-site using a soil washing technology and the treated soils would be returned to the excavation. Under Alternative 4b, the soil washing technique is assumed to be effective on the lead-contaminated soils at the sites. A treatability study to evaluate the technical feasibility of this alternative would be required. Under Alternative 4c, TPH-contaminated soils at the Diesel Fuel Leak (WRRTF-13) would be excavated and land farmed at the Central Facilities Area landfill. The excavated area would be backfilled with clean INEEL soil.

Evaluation of Nonradionuclide-Contaminated Soil/Sediment Site Alternatives

The alternatives were evaluated using seven of the nine evaluation criteria listed in the sidebar on page 12. Table 4 summarizes the comparative analysis of the alternatives for nonradionuclide-contaminated soil sites against the threshold and balancing criteria. Community acceptance will be evaluated following the end of the public comment period. More information on how the criteria were evaluated in the feasibility study process is available in Section 12 of the OU 1-10 Comprehensive RI/FS report.

Nonradionuclide-Contaminated Soil/Sediment Release Site Alternatives

Alternative 1, "Limited Action"

- WRRTF-01
- TSF-03
- TSF-08
- WRRTF-13

Alternative 2, "Native Soil Cover"

- WRRTF-01
- TSF-03
- TSF-08

Alternative 3, "Excavation and Off-Site Disposal"

- WRRTF-01
- TSF-03
- TSF-08

Alternative 4a, "Excavation and Treatment by Thermal Retort Off-Site"

- TSF-08

Alternative 4b, "Excavation and Soil Washing On-Site"

- WRRTF-01
- TSF-03

Alternative 4c, "Excavation and Land Farming"

- WRRTF-13

Overall Protection of Human Health and the Environment

The primary measure of the criterion of providing overall protection of human health and the environment is the ability of an alternative to achieve remedial action objectives. The baseline risk assessment shows that occupational risk for nonradionuclide-contaminated soil sites is acceptable. Therefore, preventing exposure to subsurface contamination by a hypothetical future resident is key to meeting the remedial action objectives and maintaining risk below acceptable levels. **Alternative 1, "Limited action,"** meets the remedial action objectives for the sites; however land-use restrictions preventing residential development would be required. **Alternative 2, "Native Soil Cover,"** also meets remedial action objectives; however, long-term maintenance and monitoring would be required to ensure that remedial action objectives continue to be met. **Alternative 3, "Excavation and Off-Site Disposal,"** meets remedial action objectives; however, some degree of long-term management and liability is associated with off-site disposal of contaminated soils. **Alternative 4a, "Excavation and Treatment by Thermal Retort Off-Site," Alternative 4b, "Excavation and Soil Washing On-Site,"** and **Alternative 4c, "Excavation and Land Farming,"** meet remedial action objectives and do not require long-term maintenance nor monitoring. However, they are less effective for short-term protection for site workers. Alternatives 1, 2, and 3 were ranked lower than Alternatives 4a, 4b, and 4c.

Compliance with Applicable, Relevant, and Appropriate Requirements

All alternatives evaluated for nonradionuclide-contaminated soils would likely meet potential ARARs. Therefore, all alternatives, are ranked equally for compliance with ARARs.

Long-Term Effectiveness and Permanence

Alternative 3, "Excavation and Off-Site Disposal," would provide the highest degree of long-term effectiveness and permanence for lead-contaminated soils at

Table 4. *Summary of comparative analysis of remedial action alternatives for nonradionuclide-contaminated soils/sediments.*[a]

Citation	Alternative					
	1	2	3	4a	4b	4c
Overall protection	Yes	Yes	Yes	Yes	Yes	Yes
Compliance with applicable, relevant, and appropriate requirements (ARARs)	Yes	Yes	Yes	Yes	Yes	Yes
Long-term effectiveness	3	3	5	4	4	4
Reduction of toxicity, mobility, or volume	3	3	5	4	4	4
Short-term effectiveness	5	4	3	2	2	2
Implementability	5	4	3	1	1	1
Cost[b]	–	–	–	–	–	–

a. Yes or No indicates that the alternative either does or does not satisfy the threshold criterion. Numeric scores reflect a relative ranking of each alternative. A score of 5 indicates that the alternative has a high relative ranking, and a score of 1 indicates that the alternative has a low relative ranking. Positive responses on the first 2 criterion and the relative number of 5 scores were used in part to select preferred alternatives.

b. The comparative analysis for the cost of each alternative by site is presented separately because each site was not evaluated for all of the alternatives.

WRRTF Burn Pits (WRRTF-01) and the Technical Support Facility Burn Pit (TSF-03) because contaminated soil would be removed from the site and placed in a managed off-site disposal unit. However, if a soil washing treatability study were to show favorable results, **Alternative 4b, "Excavation and Soil Washing On-Site,"** likely would have the greatest long-term and permanent reduction in risk at the WRRTF-01 and TSF-03 sites. **Alternative 4a, "Excavation and Treatment by Thermal Retort Off-Site,"** provides the greatest long-term effectiveness and permanence for the Mercury Spill Area (TSF-08) because mercury-contaminated soils would be both removed and treated to below applicable standards. **Alternative 4c, "Excavation and Land Farming,"** would provide the greatest long-term effectiveness and permanence for the Diesel Fuel Leak (WRRTF-13) site because all contamination would be removed and treated to below applicable standards. **Alternative 2, "Native Soil Cover,"** and **Alternative 1, "Limited action,"** are ranked slightly lower than Alternatives 3, 4a, 4b, and 4c because the inherent hazards of the soil would remain.

Reduction of Toxicity, Mobility, or Volume Through Treatment

Alternative 1, "Limited action," and **Alternative 2, "Native Soil Cover,"** would not involve direct treatment of nonradionuclide-contaminated soils; therefore, no reduction in the toxicity or volume of contamination is associated with these alternatives. However, while contaminant mobility would not be reduced with Alternative 1, such mobility would be reduced with Alternative 2. Therefore, Alternative 2 is ranked higher than Alternative 1. **Alternative 3, "Excavation and Off-Site Disposal,"** may involve some off-site treatment if disposal facility standards require it. Therefore, some reduction of toxicity, mobility, or volume could be associated with Alternative 3. Reduction in mobility with Alternative 3 would be achieved by continuing existing management practices at the off-site disposal facility. Alternatives 3, 4a, 4b, and 4c would eliminate toxicity, mobility, and volume at the sites in which the alternatives would be employed. However, **Alternative 4a, "Excavation and Treatment by Thermal Retort Off-Site," Alternative 4b, "Excavation and Soil Washing On-Site,"** and **Alternative 4c, "Excavation and Land Farming,"**would involve direct treatment of contaminated soils and, therefore, would have the highest level of toxicity, mobility, or volume reduction.

Short-Term Effectiveness

Alternative 1, "Limited action," is the highest ranked because no significant impacts to worker health and safety or the environment would occur. **Alternative 2, "Native Soil Cover,"** is ranked lower than Alternative 1 because some short-term environmental impacts are associated with construction of a native soil cover at WRRTF Burn Pits (WRRTF-01), the Technical Support Facility Burn Pit (TSF-03), and the Mercury Spill Area (TSF-08). **Alternative 3, "Excavation and Off-Site Disposal,"** is ranked lower than Alternative 2 because in addition to short-term environmental impacts, worker exposure to contaminants in soil may be increased because of excavation and disposal. **Alternative 4a, "Excavation and Treatment by Thermal Retort Off-Site," Alternative 4b, "Excavation and Soil Washing On-Site,"** and **Alternative 4c, "Excavation and Land Farming,"** are considered the least effective for short-term protection. Handling contaminated soils and treatment residuals would be required with these alternatives which would increase worker risk.

Implementability

Alternative 1, "Limited action," has the highest degree of technical and administrative feasibility because no remedial action would be taken. The installation of a perimeter security fence and the imposition of land-use restrictions are not

WRRTF-01 Comparative Cost Analysis

Alternative 1, "Limited action"	
Capital Costs	$646,696
O&M* Costs	$855,594
Total Costs	$1,502,290
Alternative 2, "Native Soil Cover"	
Capital Costs	$3,001,475
O&M* Costs	$1,466,712
Total Costs	$4,168,187
Alternative 3, "Excavation and Off-Site Disposal"	
Capital Costs	$12,518,392
O&M* Costs	none
Total Costs	$12,518,392
Alternative 4b, "Excavation and Soil Washing On-Site"	
Capital Costs	$13,343,729
O&M* Costs	none
Total Costs	$13,343,729

TSF-03 Comparative Cost Analysis

Alternative 1, "Limited action"	
Capital Costs	$550,263
O&M* Costs	$841,949
Total Costs	$1,392,212
Alternative 2, "Native Soil Cover"	
Capital Costs	$927,778
O&M* Costs	$872,370
Total Costs	$1,803,148
Alternative 3, "Excavation and Off-Site Disposal"	
Capital Costs	$1,352,293
O&M* Costs	none
Total Costs	$1,352,293
Alternative 4b, "Excavation and Soil Washing On-Site"	
Capital Costs	$4,919,397
O&M* Costs	none
Total Costs	$4,919,397

anticipated to pose significant technical or administrative difficulties. **Alternative 2, "Native Soil Cover,"** is ranked lower than Alternative 1 because of the higher degree of difficulty associated with the installation of a native soil cover. **Alternative 3, "Excavation and Off-Site Disposal,"** is ranked slightly lower than Alternative 2 because of the additional requirements associated with excavation, handling, and off-site disposal of contaminated soils. **Alternative 4a, "Excavation and Treatment by Thermal Retort Off-Site,"** and **Alternative 4b, "Excavation and Soil Washing On-Site,"** are the alternatives ranked the lowest for Implementability. Alternative 4a has been shown to be effective at reducing mercury concentrations in INEEL soils to levels below the remediation goal. However, the administrative feasibility is moderate because of the distance that would be required to ship mercury-contaminated soils to the off-site treatment facility, Bethlehem Apparatus in Pennsylvania. Alternative 4b would be more difficult to implement because of the complexity of the remediation process. A soil washing treatability study would have to be conducted on INEEL soils to further evaluate the technical feasibility of that alternative. **Alternative 4c, "Excavation and Land Farming,"** has a moderate to high Implementability because all of the equipment necessary for implementation of that alternative is readily available and land farming has been used successfully to remediate petroleum-contaminated soils from other INEEL release sites.

Cost

The capital costs and the operations and maintenance costs for each of the alternatives are presented in the side bar.

Comparative Analysis of Alternatives for Nonradionuclide-Contaminated Soil/ Sediment Release Sites

A summary of the comparative analysis of the nonradionuclide-contaminated soil/ sediment site alternatives is in Table 4. Relative rankings were assigned to each alternative based on the various evaluation criteria.

Preferred Alternatives for Nonradionuclide-Contaminated Soil/Sediments Sites

The preferred alternative for the WRRTF Burn Pits (WRRTF-01) Site and for the Technical Support Facility Burn Pits (TSF-03) is **Alternative 1, "Limited action."** This alternative would be easily implementable, would not impact worker health and safety, and would achieve the remedial action objectives. For current and future workers, the site presents no unacceptable risk. The contamination in the Burn Pits is isolated and covered with clean soils. In addition, the site presents no unacceptable risk to a hypothetical future resident because existing institutional controls would be maintained for a period of at least 100 years followed by land-use restrictions that would prevent development of the site. Additionally, permanent markers will be installed at the site documenting that hazardous waste is present at the site. As indicated in Table 4, the comparative analysis ranked Alternative 1 the highest, equaled only by Alternative 3, "Excavation and Off-Site Disposal." The cost to implement Alternative 1 versus Alternative 3 is substantially less. The decision to implement Alternative 1 would be reviewed every 5 years to ensure the viability of the decision over time and to evaluate the results of monitoring activities. Because contamination will be left in place under this alternative, monitoring to ensure that the soil above the pits would remain intact would be necessary to identify potential changes in site conditions. Because vegetation at the Burn Pits has been reestablished, significant changes in site conditions are not anticipated. Therefore, the operations and maintenance costs associated with the burn pits are conservatively estimated.

The preferred alternative for the Mercury Spill Area (TSF-08) is **Alternative 3, "Excavation and Off-Site Disposal".** Although ranked equally with Alternative 1, "Limited Action", Alternative 3 provides a more permanent action since the contaminated soils would be removed from the site. Additionally, long term monitoring and institutional controls would not be required at this site because the contamination would be removed.

The Diesel Fuel Leak (WRRTF-13) site was cleaned up previously, and the site is covered with clean soil. The preferred alternative for the site is **Alternative 1, "Limited action."** The alternative would be easily implementable, would not impact worker health and safety, and would achieve remedial action objectives. As indicated in Table 4, in the comparative analysis, Alternative 1 was ranked the highest, equaled only by **Alternative 4c, "Excavation and Land Farming."** The cost to implement Alternative 1 is greater than Alternative 4c; however, Alternative 1 would not impact worker health and safety and would not produce the impact to the environment that is associated with Alternative 4c. In addition, given that the site is covered with clean soil, the costs associated with operations and maintenance are likely inflated. The decision to implement Alternative 1 would be reviewed every 5 years to ensure the validity of the decision over time and to evaluate the results of monitoring activities. Because contamination would be left in place under the alternative, monitoring to ensure that the soil covering the Diesel Fuel Leak (WRRTF-13) remains intact would be necessary to identify potential changes in site conditions.

WRRTF-13 Comparative Cost Analysis

Alternative 1, "Limited action"	
Capital Costs	$557,808
O&M* Costs	$841,949
Total Costs	$1,399,757
Alternative 4c, "Excavation and Land Farming"	
Capital Costs	$829,055
O&M* Costs	none
Total Costs	$829,055

TSF-08 Comparative Cost Analysis

Alternative 1, "Limited action"	
Capital Costs	$535,091
O&M* Costs	$841,949
Total Costs	$1,377,040
Alternative 2, "Native Soil Cover"	
Capital Costs	$831,936
O&M* Costs	$871,423
Total Costs	$1,703,359
Alternative 3, "Excavation and Off-Site Disposal"	
Capital Costs	$810,942
O&M* Costs	none
Total Costs	$810,942
Alternative 4a, "Excavation and Treatment by Thermal Retort"	
Capital Costs	$5,715,156
O&M* Costs	none
Total Costs	$5,715,156

Tank Sites

V-Tank Contents and Contaminated Soils (TSF-09/18) Alternatives

Alternatives developed to address tank waste liquids, sludge, and contaminated soils at the V-Tank Contents and Contaminated Soil (TSF-09/18) sites are discussed in the following subsections.

Alternative 1, "Limited action." Under Alternative 1, existing management practices currently in place for the V-Tank Contents and Contaminated Soils (TSF-09/18) sites would be continued with the addition of expanded institutional controls and environmental monitoring. Institutional controls would restrict access to the sites using controls such as fencing. In addition, 5-year site reviews would evaluate the effectiveness of the institutional controls and the need for further environmental monitoring, or additional control measures.

Alternative 2, "Soil Excavation, Tank Removal, Ex Situ Treatment of Soil Contents, and Soil and Tank Contents Disposal." Alternative 2 comprises two alternatives that involve soil excavation, tank removal, ex situ treatment of soil contents, and soil and tank contents disposal. **Alternative 2a, "Soil Excavation, Tank Removal, and On-Site Treatment and Disposal,"** involves building a temporary containment structure, excavating the tanks and contaminated soils, removing the tank contents, and disposing of the excavated soils and treated materials on-site at an acceptable INEEL on-site soil repository. A temporary structure equipped with shielding and a negative pressure ventilation system exhausted through high-efficiency particulate air (HEPA) filters would be built over the tank sites before excavation. After excavation, the tank contents would be removed remotely by jetting and pumping or vacuum removal, and the tanks would be decontaminated before disposal. Tanks and the contaminated soils surrounding the tanks would be excavated using conventional construction equipment. Verification sampling would ensure all contamination at concentrations exceeding

V-Tank Contents and Contaminated Soils (TSF-09/18) Alternatives

Alternative 1, "Limited action."

Alternative 2a, "Soil Excavation, Tank Removal, and On-Site Treatment and Disposal"

- Option 2a1—Solidify and stabilize the tank contents without solid and liquid separation
- Option 2a2—Solidify and stabilize the tank contents with solid and liquid separation before solidification and stabilization
- Option 2a3—Storage of tank waste at the RWMC in high integrity containers followed by thermal treatment and ultimate disposal at the RWMC
- Option 2a4—Solid and liquid separation followed by treatment of liquids using reverse osmosis and treatment of solids by solidification or stabilization
- Option 2a5—Solid and liquid separation followed by treatment of liquids using evaporation or carbon adsorption and treatment of solids by solidification or stabilization

Alternative 2b, "Thermal Treatment at Oak Ridge National Laboratory"

Alternative 3a, "Soil Excavation, In Situ Treatment (Grouting) of Tank Contents, and On-Site Soil Disposal"

Alternative 3b, "In Situ Treatment (Grouting) and Off-Site Soil Disposal"

Alternative 4, "In Situ Vitrification of Tank Contents and Soil Within the Treatment Area"

remediation goals is removed. The excavated areas would be backfilled with clean INEEL soils. Institutional controls would not be required after site excavation and disposal because all contamination would be removed and all exposure pathways would be eliminated.

An overview of the treatment options considered for on-site treatment of the tank contents is presented below and detailed in Section 11 of the Operable Unit 1-10 Comprehensive RI/FS report.

- Option 2a1—Solidify and stabilize the tank contents without solid and liquid separation
- Option 2a2—Solidify and stabilize the tank contents with solid and liquid separation before solidification and stabilization
- Option 2a3—Storage of tank waste at the RWMC in high integrity containers followed by thermal treatment and ultimate disposal at the RWMC
- Option 2a4—Solid and liquid separation followed by treatment of liquids using reverse osmosis and treatment of solids by solidification or stabilization
- Option 2a5—Solid and liquid separation followed by treatment of liquids using evaporation or carbon adsorption and treatment of solids by solidification or stabilization.

Alternative 2b, "Thermal Treatment at Oak Ridge National Laboratory," involves building a temporary containment structure, excavating the tanks and contaminated soils, disposing of soils on-site, removing the tank contents, transporting the tank contents to Oak Ridge National Laboratory (ORNL), treating the residuals at the ORNL, and disposing of treated residuals at the RWMC. A temporary structure equipped with shielding and a negative pressure ventilation system exhausted through HEPA filters would be constructed over the tank site before excavation. After excavation, the tank contents would be removed remotely by jetting and pumping or vacuum removal, and the tanks would be decontaminated before on-site disposal. Tanks and contaminated soils surrounding the tanks would be excavated using conventional construction equipment. Tank waste would be placed in high integrity containers and transported to the ORNL for treatment, and the treatment residuals would be stabilized and returned to the INEEL for disposal at the RWMC. Liquids generated during excavation would be characterized and disposed of appropriately.

Compliance with waste characterization and transportation requirements imposed by the ORNL would be required under this alternative. Verification sampling would ensure that contamination in the top 10 feet of soil present at concentrations exceeding remediation goals was removed. The excavated areas would be backfilled with clean INEEL soils. Institutional controls would not be required because all contamination would be removed, and all exposure pathways would be eliminated. Alternative 2b would include transporting the waste in high integrity containers to the Toxic Substances Control Act incinerator at the ORNL for treatment.

Alternative 3, "Soil Excavation, In Situ Treatment of Tank Contents, and Soil Disposal." Two alternatives were developed to address tank waste at WAG 1. **Alternative 3a, "Soil Excavation, In Situ Treatment (Grouting) of Tank Contents, and On-Site Soil Disposal,"** would involve erecting of a temporary containment structure, excavating of contaminated soils, grouting the tank contents in place, and disposing of the excavated soils on-site at an acceptable INEEL on-site soil repository. A temporary structure equipped with shielding and a negative pressure ventilation system exhausted through HEPA filters would be constructed over the tank site before

the start of excavation. Contaminated soils would be excavated using conventional construction equipment. The tank contents would be grouted in place remotely by injecting grout into the tanks through existing manholes.

Excavated soils would be transported to an acceptable INEEL soil repository for disposal. Verification sampling would ensure contamination present at concentrations exceeding remediation goals was removed. The excavated areas would be backfilled with clean INEEL soils. Environmental monitoring would be conducted following completion of the remedial action because the tank contents would be left in place. In addition, 5-year site reviews would evaluate the effectiveness of the institutional controls and the need for further environmental monitoring.

Alternative 3b, "In Situ Treatment (Grouting) and Off-Site Soil Disposal," is the same as Alternative 3a except the excavated soil is disposed of off-site. Compliance with appropriate waste characterization and transportation requirements imposed by the disposal facility would be required.

Alternative 4, "In Situ Vitrification of Tank Contents and Soil Within the Treatment Area." Alternative 4 involves in situ vitrification (ISV). The proposed process works by establishing two planar-shaped ISV melts on opposite sides of an underground storage tank. These two melts grow together and process the tank and its contents as melting progresses. The melting technique, combined with the structural disruption of the upper regions of the tank, provides a pathway for vapors generated within the tank to be continuously vented during processing. The venting prevents the entrapment of the vapors that could lead to unacceptable operating conditions. The system involves the use of an array of graphite electrodes to supply electrical energy to the soil and waste. The natural electrical properties of the molten soil permit the flow of current between the electrodes. Gases are generated during processing and are allowed to escape to the surface where they are contained and collected by an off-gas hood. The hood is maintained at a partial vacuum to ensure that the off gases are transported through the off-gas treatment system before their ultimate release to the environment. The electrodes would be installed to near the target treatment depth before initiation of melting. Casings using a vibratory insertion method would be used to minimize contamination brought to the surface.

Evaluation of V-Tank Contents and Contaminated Soils (TSF-09/18) Alternatives

The alternatives were evaluated using seven of the nine evaluation criteria listed in the sidebar. Table 5 summarizes the comparative analysis of the alternatives for V-Tank contents and contaminated soils (TSF-09/18) against the threshold and balancing criteria. Community acceptance will be evaluated following the end of the public comment period. More information on how the criteria were evaluated in the feasibility study process is available in Section 12 of the OU 1-10 Comprehensive RI/FS report.

Overall Protection of Human Health and the Environment

As stated previously, the primary measure of overall protection human health and the environment is the ability of an alternative to achieve remedial action objectives. **Alternative 1, "Limited action,"** would not prevent the release of contaminants to the environment and, therefore, would not meet remedial action objectives for the V-Tank Contents and Contaminated Soils (TSF-09/18) sites. **Alternative 2, "Soil Excavation, Tank Removal, and Ex Situ Treatment, and Disposal,"** and the various options considered under that alternative, as well as **Alternative 3a, "Soil Excavation, In Situ**

Table 5. *Summary of comparative analysis of remedial action alternatives for TSF-09/18.*[a]

Citation	Alternative									
	1	2a1	2a2	2a3	2a4	2a5	2b	3a	3b	4
Overall protection	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Compliance with applicable or relevant and appropriate requirements (ARARs)	No	No	No	Yes	No	No	Yes	Yes[b]	Yes[b]	Yes
Long-term effectiveness	0	5	5	5	5	5	5	4	4	4
Reduction of toxicity, mobility, or volume	2	3	3	5	4	4	5	4	4	3
Short-term effectiveness	5	3	3	2	2	2	1	4	4	2
Implementability	5	4	4	1	1	1	1	4	4	1
Cost	5	1	2	3	1	1	3	4	3	2

a. Yes or No indicates that the alternative either does or does not satisfy the threshold criterion. Numeric scores reflect a relative ranking of each alternative. A score of 5 indicates that the alternative has a high relative ranking, and a score of 1 indicates that the alternative has a low relative ranking. Positive responses on the first 2 criterion and the relative number of 5 scores were used in part to select preferred alternatives.

b. Chemical destruction of PCBs may be utilized as an alternative treatment technology as allowed under 40 CRR 761.60 (e) for alternative 3.

Treatment (Grouting) of Tank Contents, and On-Site Soil Disposal"; **Alternative 3b, "In Situ Treatment (Grouting) and Off-Site Soil Disposal"**; and **Alternative 4, "In Situ Vitrification of Tank Contents and Soil Within the Treatment Area"**; would meet remedial action objectives. However, Alternative 2 is ranked the highest of the V-Tank alternatives for overall protection because under Alternative 2, the tank contents would be removed rather than being treated in situ.

Compliance with Applicable, Relevant, and Appropriate Requirements. Only **Alternative 4, "In Situ Vitrification of Tank Contents and Soil Within the Treatment Area,"** would meet ARARs without requiring utilization of alternative treatment technologies as allowed under 40 CFR 761.60 (e) (see footnote b, Table 2). Because of the allowable treatment technology, Alternatives 3a, 3b, and 4 are reanked equally for compliance with ARARs. After the institutional control period, TBCs would not be met because no such controls would be implemented after the control period.

Long-Term Effectiveness and Permanence. **Alternative 2a, "Soil Excavation, Tank Removal, and On-Site Treatment and Disposal,"** and the various treatment options considered under that alternative, and **Alternative 2b, "Thermal Treatment at Oak Ridge National Laboratory,"** provide the highest degree of long-term effectiveness and permanence for the V-Tank Contents and Contaminated Soils (TSF-09/18) sites because the contaminated soil, tanks, and the tank contents would be removed and the tanks and the tank contents would be treated and placed in a managed disposal unit. **Alternative 3a, "Soil Excavation, In Situ Treatment (Grouting) of Tank Contents, and On-Site Soil Disposal"**; and **Alternative 3b, "In Situ Treatment (Grouting) and Off-Site Soil Disposal"**; are the lowest ranked alternatives for long-term effectiveness and permanence. These alternatives are also ranked lower than Alternative 4 as it will provide a more permanent waste form than grouting. These alternatives would not involve removal of the tanks themselves and, therefore, are ranked lower than Alternative 2a and 2b. **Alternative 4, "In Situ Vitrification of**

Tank Contents and Soil Within the Treatment Area," is ranked lower than Alternatives 2a and 2b because under the vitrification alternative, neither the tank contents nor the contaminated soil would be removed and the tank contents and soil would be treated together. Vitrification will provide a more permanent waste form so this alternative is ranked higher than Alternatives 3a and 3b. With Alternative 4, potential residential exposure to contaminants in tank contents and the soil is considered unlikely rather than being necessary to prevent. **Alternative 1, "Limited action,"** provides the least long-term effectiveness.

Reduction of Toxicity, Mobility, or Volume Reduction Comparison

Alternative 1, "Limited action," would not reduce the toxicity, mobility, or volume of the tank contents or contaminated soils. Under **Alternative 2, "Soil Excavation, Tank Removal, Ex Situ Treatment, and Disposal,"** the six treatment strategies were evaluated, and Option 2a1, solidification and stabilization of the tank contents without solid or liquid separation, was the lowest-ranking option for Alternative 2. The option would immobilize the contaminants and is considered to be irreversible. It would not reduce waste toxicity. In addition, solidification would increase the final waste volume. The next lowest treatment option for Alternative 2 is Option 2a5, on-site combined technology, because the alternative would reduce the waste volume but not the toxicity. However, in addition to immobilizing the waste, the option would reduce the final waste volume by removing some of the water before the solidification process. The highest-ranking treatment option under Alternative 2 is Option 2a3, thermal treatment and ultimate disposal at the RWMC. In addition to waste immobilization, the option would reduce toxicity by destroying the volatile organic compounds and would achieve maximum waste volume reduction by removing all the water during treatment. However, the final waste still would be toxic because of the nonvolatile RCRA metals and radionuclides that would remain in the product.

Alternative 3a, "Soil Excavation, In Situ Treatment (Grouting) of Tank Contents, and On-Site Soil Disposal"; **Alternative 3b, "In Situ Treatment (Grouting) and Off-Site Soil Disposal"**; and **Alternative 4, "In Situ Vitrification of Tank Contents and Soil Within the Treatment Area"**; would not involve removal of the tank contents, only treatment, and, therefore, are ranked lower than the options in Alternative 2. As result of treating the tank contents in place under Alternatives 3a, 3b, and 4, long-term monitoring and management would be required to verify that remedial action objectives continue to be met over time. Alternative 1 is ranked the lowest because contaminated soils, tanks, and the tank contents would not be removed or treated. In addition, considerable long-term monitoring and management would be required under Alternative 1 and the remedial action objectives would not be attained.

Short-Term Effectiveness Comparison

Alternative 1, "Limited action," exhibits the highest degree of short-term effectiveness. Alternative 1 likely would result in no significant impacts to worker health and safety or the environment. **Alternative 3a, "Soil Excavation, In Situ Treatment (Grouting) of Tank Contents, and On-Site Soil Disposal"**; **Alternative 3b, "In Situ Treatment (Grouting) and Off-Site Soil Disposal"**; and **Alternative 4, "In Situ Vitrification of Tank Contents and Soil Within the Treatment Area"**; are ranked the next highest for short-term effectiveness. Under Alternatives 3a, 3b, and 4, the tank contents would not be directly contacted because they would be treated in place. The highest exposure risk to workers is **Alternative 2a, "Soil Excavation, Tank Removal, and On-Site Treatment and Disposal," Options 2a4 and 2a5.** The Alternative 2a treatment options specify the most equipment requiring operator

TSF-09/18 Comparative Cost Analysis

Alternative 1, "Limited action"	
Capital Costs	$541,946
O&M* Costs	$841,949
Total Costs	$1,383,895
Alternative 2a, Option 2a1, "Ex Situ Solidification/Stabilization Without Solid or Liquid Separation"	
Capital Costs	$12,994,944
O&M* Costs	none
Total Costs	$12,994,944
Alternative 2a, Option 2a2, "Ex Situ Solidification or Stabilization with Solid or Liquid Separation"	
Capital Costs	$10,242,269
O&M* Costs	none
Total Costs	$10,242,269
Alternative 2a, Option 2a3, "Thermal Treatment at INEEL"	
Capital Costs	$7,856,839
O&M* Costs	none
Total Costs	$7,856,839
Alternative 2a, Option 2a4, "On-Site Combined Technology Using Reverse Osmosis"	
Capital Costs	$13,461,979
O&M* Costs	none
Total Costs	$13,461,979
Alternative 2a, Option 2a5, "On-Site Combined Technology Using Evaporation"	
Capital Costs	$13,944,523
O&M* Costs	none
Total Costs	$13,944,523
Alternative 2b, "Thermal Treatment at Oak Ridge National Laboratory"	
Capital Costs	$8,233,720
O&M* Costs	none
Total Costs	$8,233,720

Treatability Study - Testing of a treatment technology to evaluate the application to a particular site.

attendance and maintenance. In addition, the tank area is not a fixed facility equipped with permanent radiological and chemical protective features such as would be employed under Alternative 2a, Option 2a3. The alternative providing less worker exposure is Alternative 2a, Options 2a1 and 2a2. Though less equipment would be used than under Options 2a4 and 2a5, Options 2a1 and 2a2 are envisioned to be performed on-site using temporary, mobile facilities. Alternative 2a, Option 2a3, which would involve storage of tank waste at the RWMC, offers the greatest protection to workers because of the protective features of the facility. Alternative 2b is ranked low because of the additional potential for exposures during the transport of the tank contents to the off-site treatment facility and the return of the treated residuals to the INEEL.

Implementability

Alternative 2a, "Soil Excavation, Tank Removal, and On-Site Treatment and Disposal," Options 2a4 and 2a5, and **Alternative 4, "In Situ Vitrification of Tank Contents and Soil Within the Treatment Area,"** have the lowest implementability ranking for the V-Tank Contents and Contaminated Soils (TSF-09/18) sites because of the complexity of achieving the alternatives by comparison to the other strategies. Under the Alternative 2a options, the achievement of a consistent waste volume reduction and monitoring the effectiveness are considered to be difficult. Alternative 4 has the highest risk due to this technology not having yet been successfully demonstrated at the scale required for vitrification of the tanks. Of all the V-Tank alternatives, the number of necessary approvals and permits is greatest for the Alternative 2 options. Alternative 2a, Option 2a3, also ranks low for implementability because it is uncertain whether on-site treatment of PCB-containing waste would be available. For Alternative 2b, the logistics for shipping liquid mixed waste to the ORNL are complex and currently the laboratory is under a self-imposed moratorium from receiving out-of-state waste. Therefore, Alternative 2a, Option 2b, is considered to have low implementability. The next highest ranking alternatives for implementability are Alternative 2a, Options 2a1 and 2a2; **Alternative 3a, "Soil Excavation, In Situ Treatment (Grouting) of Tank Contents, and On-Site Soil Disposal"**; and **Alternative 3b, "In Situ Treatment (Grouting) and Off-Site Soil Disposal."** These alternatives and treatment options are a relatively simple processes and could be performed at the INEEL with the fewest administrative approvals and permits. **Alternative 1, "Limited action,"** is the most easily implementable alternative.

Cost. The comparative analysis for each of the alternatives considered for treatment of the Tanks and Contaminated Soils (TSF-09/18) is presented in the sidebar.

Comparative Analysis of Alternatives for V-Tank Contents and Contaminated Soils (TSF-09/18)

Table 5 is a summary of the comparative analysis for the treatment processes considered for the V-Tank Contents and Contaminated Soils (TSF-09/18) sites. Relative rankings were assigned to each alternative based on the various evaluation criteria.

Preferred Alternative for V-Tank Contents and Contaminated Soils (TSF-09/18.)

The preferred alternative for the V-Tank Contents adn Contaminated Soils (TSF-09/18) is **Alternative 4, "In Situ Vitrification of Tank Contents and Soil Within The Treatment Area."** This preference is dependent on the successful completion of an ongoing **Treatability Study** (TS) for this technology. This alternative is the only

alternative that will comply with ARARs, except as noted on Tabel 5. This site would not produce an unacceptable risk to future workers or a hypothetical future resident because existing institutional controls would be maintained for a period of at least 100 years followed by land-use restrictions that would prevent development. Additionally, permanent markers will be installed at the site documenting that hazardous waste is present. If the TS for the vitrification technology determines that this technology is not implementable for this application, then Alternative 3a, "Soil Excavation, In Situ Treatment (Grouting) of Tank Contents and On-Site Soil Disposal" would be the preferred alternative. This technology is also being evaluated with an ongoing TS. The decision to employ in situ vitrification or in situ grouting while leaving the residual material in place would be reviewed every 5 years to ensure the validity of the decision over time and to evaluate the results of monitoring activities. Because contamination would be left in place, monitoring would be necessary to identify potential changes in site conditions. As the contents of the tanks are contaminated with uranium-235, a fissile material, further evaluation will be performed prior to any remediation.

PM-2A Tank Contents and Contaminated Soils (TSF-26) Alternatives

Alternatives developed to address tank waste liquids, sludge, and contaminated soils at the PM-2A Tank Contents and Contaminated Soils (TSF-26) site are discussed in the following subsections.

Alternative 1, "Limited action." Under Alternative 1, existing management practices would be continued with the addition of expanded institutional controls and environmental monitoring of the PM-2A tanks and tank contents. Institutional controls would restrict access to contaminated sites using controls such as fencing. 5-year site reviews would evaluate the effectiveness of the institutional controls and the need for further environmental monitoring or additional control measures.

Alternative 2, "Soil Excavation, Tank Removal, Ex Situ Treatment, and Disposal." Alternative 2 includes two strategies using soil excavation, tank removal, on-site treatment, and disposal. **Alternative 2a, "Soil Excavation, Tank Removal, and On-Site Treatment and Disposal,"** would require erecting a temporary containment structure, excavating the tanks and contaminated soils, removing and stabilizing the dewatered tank contents, and disposing of the excavated soils and treated materials on-site. Soils would be disposed of on-site at an acceptable INEEL soil repository. A temporary structure equipped with shielding and a negative pressure ventilation system exhausted through high efficiency particulate air (HEPA) filters would be constructed over the tank sites. After excavation, the tank contents would be removed remotely by jetting and pumping or vacuum removal, and the tanks would be decontaminated before disposal. The tanks and the contaminated soils surrounding the tanks would be excavated using conventional construction equipment. Liquid generated during excavation would be characterized and disposed of. Soil verification sampling would ensure that all contamination at concentrations exceeding remediation goals was removed. The excavated areas would be backfilled with clean INEEL soils. Institutional controls would not be required after site excavation and disposal activities because all accessible contamination would be removed and all exposure pathways would be eliminated.

Alternative 2b, "Soil Excavation, Tank Removal, On-Site Treatment, and Off-Site Disposal," is the same as Alternative 2a except for off-site disposal. Compliance with waste characterization and transportation requirements imposed by the off-site disposal facility would be required under this alternative.

TSF-09/18 Comparative Cost Analysis (cont'd)

Alternative 3a, "Soil Excavation, In Situ Treatment (Grouting) of Tank Contents, and On-Site Soil Disposal"	
Capital Costs	$4,925,688
O&M* Costs	$869,240
Total Costs	$4,991,306
Alternative 3b, "In Situ Treatment (Grouting) and Off-Site Soil Disposal"	
Capital Costs	$4,925,688
O&M* Costs	$869,240
Total Costs	$5,794,928
Alternative 4, "In Situ Vitrification of Tank Contents and Soil Within the Treatment Area"	
Capital Costs	$9,602,624
O&M* Costs	$869,240
Total Costs	$10,471,864

PM-2A Tank Contents and Contaminated Soils (TSF-26) Alternatives

Alternative 1, "Limited action"

Alternative 2a, "Soil Excavation, Tank Removal, and On-Site Treatment and Disposal"

Alternative 2b, "Soil Excavation, Tank Removal, On-Site Treatment, and Off-Site Disposal"

Alternative 3a, "Soil Excavation, Tank Content Removal, and On-Site Treatment, and Disposal"

Alternative 3b, "Soil Excavation, Tank Content Removal, On-Site Treatment, and Off-Site Disposal"

Alternative 4a, "Soil Excavation, In Situ Treatment of Tank Contents, and On-Site Soil Disposal"

Alternative 4b, "Soil Excavation, In Situ Treatment of Tank Contents, and Off-Site Soil Disposal"

Alternative 5a, "Soil Excavation, In Situ Vitrification of Tank Contents, and On-Site Soil Disposal"

Alternative 5b, "Soil Excavation, In Situ Vitrification of Tank Contents, and Off-Site Soil Disposal"

Alternative 3, "Soil Excavation, Tank Content Removal, On-Site Treatment, and Disposal." Alternative 3 is similar to Alternative 2 except that the tanks would remain in place. Two alternatives were developed using this scenario. **Alternative 3a, "Soil Excavation, Tank Content Removal, and On-Site Treatment and Disposal,"** would require building a temporary containment structure, excavating contaminated soils, removing the tank contents, stabilizing the dewatered tank contents, and disposing of the excavated soils and treated tank contents on-site. Soils and treated tank contents would be disposed of at an acceptable INEEL on-site repository. A temporary structure equipped with shielding and a negative pressure ventilation system exhausted through HEPA filters would be constructed over the tank site. Contaminated soils surrounding the tanks would be excavated using conventional construction equipment. The tank contents would be removed remotely using technologies such as jetting and pumping or vacuum removal. The tank waste would be dewatered to extract liquids introduced during removal and would be treated to create a stable waste form. The treated waste form would conform to applicable limits on the leachability of contaminants and structural stability. Excavated tank contents requiring treatment would be stabilized on-site by mixing the contents with chemical additives such as phosphates or silicates. Liquid generated during excavation would be characterized and disposed of appropriately. The tanks would be decontaminated and filled with an inert material such as sand or grout.

Verification sampling of remaining soils would ensure that all contamination at concentrations exceeding remediation goals was removed. The excavated areas would be backfilled with clean INEEL soils. Institutional controls would not be required because all contamination would be removed to hypothetical residential levels of intrusion and all exposure pathways would be eliminated.

Alternative 3b, "Soil Excavation, Tank Content Removal, On-Site Treatment, and Off-Site Disposal," is identical to Alternative 3a with the exception of the off-site disposal component. Compliance with appropriate waste characterization and transportation requirements imposed by the off-site disposal facility would be required under this alternative.

Alternative 4, "Soil Excavation, In Situ Treatment of Tank Contents, and Soil Disposal." Two alternatives were developed under Alternative 4. **Alternative 4a, "Soil Excavation, In Situ Treatment of Tank Contents, and On-Site Soil Disposal,"** would require building a temporary containment structure, excavating contaminated soils, filling the tanks with an inert material such as sand or grout in place, and disposing of the excavated soils on-site at an acceptable INEEL on-site soil repository. Contaminated soils would be excavated using conventional construction equipment. The tank contents would be filled in place remotely by injecting grout or inert material into the tanks through existing manholes. Excavated soils would be transported to an acceptable INEEL on-site soil repository for on-site disposal. Verification sampling would be conducted to ensure that all contamination at concentrations exceeding remediation goals was removed. The excavated areas would be backfilled with clean INEEL soils. Environmental monitoring would be required because the treated tank contents would remain in place. In addition, 5-year site reviews would evaluate the effectiveness of the institutional controls and the need for further environmental monitoring or additional controls.

Alternative 4b, "Soil Excavation, In Situ Treatment of Tank Contents, and Off-Site Soil Disposal," is identical to Alternative 4a with the exception of the off-site disposal component. Compliance with appropriate waste characterization and transportation requirements imposed by the off-site disposal facility would be required.

Alternative 5, "Soil Excavation, In Situ Vitrification of Tank Contents, and Soil Disposal." Alternative 5 is similar to Alternative 4 with the exception of the proposed treatment of the PM-2A tank waste. Under Alternative 5, two alternatives were developed. **Alternative 5a, "Soil Excavation, In Situ Vitrification of Tank Contents, and On-Site Soil Disposal,"** would require erecting a temporary containment structure, excavating contaminated soils, vitrifying the tank contents in place, and disposing of the excavated soils on-site at an acceptable INEEL on-site soil repository. A temporary structure equipped with shielding and a negative pressure ventilation system exhausted through HEPA filters would be built over the tank site before excavation began. Contaminated soils would be excavated using conventional construction equipment. The tank contents would be treated in place by in situ vitrification coupled with a vapor control preconditioning technique. Excavated soils would be transported to an acceptable INEEL on-site soil repository for on-site disposal. Verification sampling ensure that all contamination at concentrations exceeding remediation goals was removed. The excavated areas would be backfilled with clean INEEL soils. Environmental monitoring would also be required because the treated tank contents would remain in place. In addition, 5-year site reviews would evaluate the effectiveness of the institutional controls and the need for further environmental monitoring or additional control measures.

Alternative 5b, "Soil Excavation, In Situ Vitrification of Tank Contents, and Off-Site Soil Disposal," is the same as Alternative 5a except for the off-site disposal component. The tank contents would be vitrified in place as detailed under Alternative 5a but the excavated soils would be transported to the off-site low-level radioactive waste disposal facility. Compliance with waste characterization and transportation requirements imposed by the off-site disposal facility would be required.

Evaluation of PM-2A Tank Contents and Contaminated Soils (TSF-26) Alternatives

The alternatives were evaluated using seven of the nine evaluation criteria listed in the sidebar. Table 6 summarizes the comparative analysis of the alternatives for PM-2A Tank contents and contaminated soils (TSF-26) against the threshold and balancing criteria. Community acceptance will be evaluated following the end of the public comment period. More information on how the criteria were evaluated in the feasibility study process is available in Section 12 of the OU 1-10 Comprehensive RI/FS report.

Overall Protection of Human Health and the Environment

As stated previously, the primary measure of this criterion is the ability of an alternative to achieve remedial action objectives. **Alternative 1, "Limited action,"** does not prevent the release of contaminants at the PM-2A Tank Contents and Contaminated Soils (TSF-26) site to the environment and, therefore, will not meet the remedial action objectives. The potential for release by removing both the tanks contents and contaminated soils is eliminated under **Alternative 2a, "Soil Excavation, Tank Removal, and On-Site Treatment and Disposal,"** and **Alternative 2b, "Soil Excavation, Tank Removal, On-Site Treatment, and Off-Site Disposal."** Therefore, the two alternatives represent the most effective means of overall protection. In addition, long-term monitoring or access restrictions would not be required because the tanks would remain in place during removal of the contents. The next most effective alternatives for overall protection are **Alternative 3a, "Soil Excavation, Tank Content Removal, and On-Site Treatment and Disposal,"** and **Alternative 3b, "Soil Excavation, Tank Content Removal, On-Site Treatment,**

Table 6. *Summary of comparative analysis of remedial action alternatives for PM-2A Tank Contents and Contaminated Soils (TSF-26).*[a]

Citation	Alternative								
	1	2a	2b	3a	3b	4a	4b	5a	5b
Overall protection	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Compliance with applicable or relevant and appropriate requirements (ARARs)	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Long-term effectiveness	1	5	5	4	4	3	3	3	3
Reduction of toxicity, mobility, or volume	1	5	5	3	3	3	3	4	4
Short-term effectiveness	5	1	1	2	1	4	3	4	3
Implementability	5	2	1	1	1	4	3	4	3
Cost[a]	5	4	3	4	3	5	4	3	2

a. Yes or No indicates that the alternative either does or does not satisfy the threshold criterion. Numeric scores reflect a relative ranking of each alternative. A score of 5 indicates that the alternative has a high relative ranking, and a score of 1 indicates that the alternative has a low relative ranking. Positive responses on the first 2 criterion and the relative number of 5 scores were used in part to select preferred alternatives.

and Off-Site Disposal." Assuming that in situ treatment of the tank contents would be similarly effective, **Alternative 4a, "Soil Excavation, In Situ Treatment of Tank Contents, and On-Site Soil Disposal"**; **Alternative 4b, "Soil Excavation, In Situ Treatment of Tank Contents, and Off-Site Soil Disposal"**; **Alternative 5a, "Soil Excavation, In Situ Vitrification of Tank Contents, and On-Site Soil Disposal"**; and **Alternative 5b, "Soil Excavation, In Situ Vitrification of Tank Contents, and Off-Site Soil Disposal"** are ranked the same. Because the treated tank contents would remain in place, long-term monitoring would be required under the four alternatives.

Compliance with ARARs

All alternatives with the exception of Alternative 1, "Limited Action" meet ARARs except for TBCs. After the institutional control period, TBCs would not be met because no such controls would be implemented after the control period. Therefore Alternatives 2, 3, 4, and 5 are ranked equally for compliance with ARARs.

Long-Term Effectiveness and Permanence

The highest degree of long-term effectiveness and permanence is provided by **Alternative 2a, "Soil Excavation, Tank Removal, and On-Site Treatment and Disposal,"** and **Alternative 2b, "Soil Excavation, Tank Removal, On-Site Treatment, and Off-Site Disposal,"** because contaminated soil, tanks, and tank contents would be removed from the site and the tanks and tank contents would be treated and placed in a managed disposal unit. **Alternative 3a, "Soil Excavation, Tank Content Removal, and On-Site Treatment and Disposal,"** and **Alternative 3b, "Soil Excavation, Tank Content Removal, On-Site Treatment, and Off-Site Disposal,"** are ranked the next highest for long-term effectiveness and permanence. These alternatives are ranked lower than Alternatives 2a and 2b because they would not involve removal of the tanks themselves and the contaminated soils surrounding the tanks. **Alternative 4a, "Soil Excavation, In Situ Treatment of Tank Contents, and On-Site Soil Disposal"**; **Alternative 4b, "Soil Excavation, In Situ Treatment of Tank Contents, and Off-Site Soil Disposal"**; **Alternative 5a, "Soil Excavation, In Situ Vitrification of Tank Contents, and On-Site Soil Disposal"**; and **Alternative 5b, "Soil Excavation, In Situ Vitrification of Tank Contents, and Off-**

Site Soil Disposal"; would not involve removal of the tank contents, only treatment, and, therefore, are ranked lower than the Alternative 3 strategies. Because the tank contents would be treated in place under Alternatives 4a, 4b, 5a, and 5b, long-term monitoring and management would be required to verify that remedial action objectives would continue to be met over time. **Alternative 1, "Limited action,"** is the alternative ranked the lowest because the contaminated soils, tanks, and tank contents would not be removed or treated. In addition, considerable long-term monitoring and management would be required under Alternative 1 and the remedial action objectives would not be attained.

Reduction of Toxicity, Mobility, or Volume Through Treatment

Alternative 2a, "Soil Excavation, Tank Removal, and On-Site Treatment and Disposal," and **Alternative 2b, "Soil Excavation, Tank Removal, On-Site Treatment, and Off-Site Disposal,"** provide the highest degree of reduction in toxicity, mobility, or volume at the PM-2A Tanks and Contaminated Soils (TSF-26) site because the tanks and the tank contents would be treated on-site and placed in an on-site managed disposal unit. The alternatives ranked the next highest for reduction in toxicity, mobility, or volume are **Alternative 5a, "Soil Excavation, In Situ Vitrification of Tank Contents, and On-Site Soil Disposal,"** and **Alternative 5b, "Soil Excavation, In Situ Vitrification of Tank Contents, and Off-Site Soil Disposal,"** because the in situ vitrification is presumed to reduce volume and provides for organic contaminant destruction. Along with Alternatives 5a and 5b, **Alternative 3a, "Soil Excavation, Tank Content Removal, and On-Site Treatment and Disposal"**; **Alternative 3b, "Soil Excavation, Tank Content Removal, On-Site Treatment, and Off-Site Disposal"**; **Alternative 4a, "Soil Excavation, In Situ Treatment of Tank Contents, and On-Site Soil Disposal"**; and **Alternative 4b, "Soil Excavation, In Situ Treatment of Tank Contents, and Off-Site Soil Disposal"**; would not involve removal and decontamination of the tanks themselves, and, therefore, are ranked the next highest. **Alternative 1, "Limited action,"** is the alternative ranked the lowest because under the alternative, neither the tanks nor the tank contents would be removed or treated.

Short-Term Effectiveness

Alternative 1, "Limited action," would result in no significant impacts to worker health and safety or to the environment. Therefore, Alternative 1 has the highest degree of short-term effectiveness. Ranked the next highest for short-term effectiveness are **Alternative 4a, "Soil Excavation, In Situ Treatment of Tank Contents, and On-Site Soil Disposal"**; and **Alternative 5a, "Soil Excavation, In Situ Vitrification of Tank Contents, and On-Site Soil Disposal."** Under Alternatives 4a and 5a, the tank contents would not be directly contacted because they would be treated in place. Direct contact with the tank contents also would not be involved with **Alternative 4b, "Soil Excavation, In Situ Treatment of Tank Contents, and Off-Site Soil Disposal,"** and **Alternative 5b, "Soil Excavation, In Situ Vitrification of Tank Contents, and Off-Site Soil Disposal."** However, off-site transportation and disposal of contaminated soils would be required under Alternatives 4b, and 5b. Therefore, Alternative 4b and 5b are ranked slightly lower than Alternative 4a and 5a. **Alternative 3a, "Soil Excavation, Tank Content Removal, and On-Site Treatment and Disposal,"** is ranked lower than Alternatives 4b and 5b because Alternative 3a would involve direct contact with the tank contents. **Alternative 3b, "Soil Excavation, Tank Content Removal, On-Site Treatment, and Off-Site Disposal,"** involves off-site transportation and disposal of contaminated soils and the tank contents and, therefore, is ranked slightly lower than Alternative 3a.

TSF-26 Comparative Cost Analysis

Alternative 1, "Limited action"

Capital Costs	$572,528
O&M* Costs	$857,232
Total Costs	$1,429,760

Alternative 2a, "Soil Excavation, Tank Content Removal, and On-Site Treatment and Disposal"

Capital Costs	$10,056,101
O&M* Costs	none
Total Costs	$10,056,101

Alternative 2b, "Soil Excavation, Tank Removal, On-Site Treatment, and Off-Site Disposal"

Capital Costs	$12,762,394
O&M* Costs	none
Total Costs	$12,762,394

Alternative 3a, "Soil Excavation, Tank Content Removal, and On-Site Treatment and Disposal"

Capital Costs	$9,124,666
O&M* Costs	none
Total Costs	$9,124,666

Alternative 3b, "Soil Excavation, Tank Content Removal, On-Site Treatment, and Off-Site Disposal"

Capital Costs	$12,074,943
O&M* Costs	none
Total Costs	$12,074,943

Alternative 2a, "Soil Excavation, Tank Removal, and On-Site Treatment and Disposal," is ranked lower than Alternative 3b because under Alternative 2a, the tanks themselves, and a greater volume of contaminated soils would be removed than under Alternative 3b. **Alternative 2b, "Soil Excavation, Tank Removal, On-Site Treatment, and Off-Site Disposal,"** is ranked slightly lower than Alternative 2a because off-site transportation and disposal of contaminated soils and the tank contents would be required under Alternative 2b.

Implementability

Alternative 1, "Limited action," has the highest degree of technical and administrative feasibility because no remedial action would be taken. Continuing access restriction and monitoring along with imposing land-use restrictions are not expected to present significant technical or administrative difficulties. Ranked the next highest for implementability are **Alternative 4b, "Soil Excavation, In Situ Treatment of Tank Contents, and Off-Site Soil Disposal,"** and **Alternative 5b, "Soil Excavation, In Situ Vitrification of Tank Contents, and Off-Site Soil Disposal,"** because the alternatives involve in place treatment of the tank contents and off-site disposal of contaminated soils. **Alternative 4a, "Soil Excavation, In Situ Treatment of Tank Contents, and On-Site Soil Disposal,"** and **Alternative 5a, "Soil Excavation, In Situ Vitrification of Tank Contents, and On-Site Soil Disposal,"** are ranked next for implementability because treatment of the tank contents would be in place and disposal of contaminated soils would be on-site rather than off-site. Next in the ranking for implementability is **Alternative 2a, "Soil Excavation, Tank Removal, and On-Site Treatment and Disposal,"** because it involves the complete removal of the tank contents and contaminated soil coupled with on-site disposal. **Alternative 2b, "Soil Excavation, Tank Removal, On-Site Treatment, and Off-Site Disposal,"** is ranked lower than Alternative 2a because of the off-site disposal component. **Alternative 3a, "Soil Excavation, Tank Content Removal, and On-Site Treatment and Disposal,"** is ranked lower than Alternative 2b because a remote removal operation would be employed for removal of the tank contents. **Alternative 3b, "Soil Excavation, Tank Content Removal, On-Site Treatment, and Off-Site Disposal,"** is ranked lower than Alternative 3a because of the off-site rather than on-site disposal component.

Cost

The comparative analysis for each of the alternative is presented in the sidebar.

Comparative Analysis of Alternatives for PM-2A Tank Contents and Contaminated Soils (TSF-26)

A summary of the comparative analysis of alternatives for the PM-2A Tank Contents and Contaminated Soils (TSF-26) site is presented in Table 6. Relative rankings were assigned to each alternative based on the various evaluation criteria.

Preferred Alternative for PM-2A Tank Contents and Contaminated Soils (TSF-26.

The preferred alternative of the remedial action alternatives for the PM-2A Tank Contents and Contaminated Soils (TSF-26) site is **Alternative 4a, "Soil Excavation, In Situ Treatment of Tank Contents, and On-Site Soil Disposal."** Along with Alternative 2a, "Soil Excavation, Tank Removal, and On-Site Treatment and Disposal," Alternative 4a was ranked the highest technically among the alternatives considered. However, unlike Alternative 4a, Alternative 2a would require the removal

and on-site treatment of the tank contents, which represents a substantially higher risk to workers than under Alternative 4a. Only Alternative 1, "Limited action," was ranked as less expensive than Alternative 4a. Disposal of the contaminated soils on-site is consistent with previous removal actions at Test Area North and because the tank contents would not be removed for treatment, worker health and safety would be promoted. The tank contents presents no unacceptable risk to future workers or a hypothetical future resident because existing institutional controls would be maintained for a period of at least 100 years followed by land-use restrictions that would prevent development and the tanks are buried more than ten feet below land surface. Additionally, permanent markers will be installed at the site documenting that hazardous waste is present. The decision would be reviewed every 5 years to ensure the validity of the decision over time and to evaluate the results of monitoring activities. Because contamination would be left in place under this alternative, monitoring would be necessary to identify potential changes in site conditions.

Preferred Alternatives for Retained Sites

Low-Level Radionuclide-Contaminated Soils/Sediments Release Sites

The preferred alternative for the Soil Contamination Area, Soil South of the Turntable (TSF-06, Area B) is **Alternative 3a, "Excavation and On-Site Disposal."** This alternative represents the most permanent solution to the contamination problem and is the most cost-effective. The preferred alternative is consistent with previous removal actions at Test Area North and would promote consolidation of the low-level radionuclide-contaminated soil/sediments in a centralized repository. Long-term monitoring and institutional controls would not be required at the two sites because the contamination would be removed.

The preferred alternative for the Test Area North Disposal Pond (TSF-07) is **Alternative 1. "Limited Action."** The alternative was selected based on the fact that, while radium-226 was detected in the pond sediments at concentration levels that result in unacceptable risk to human health, it is highly probable that the detections represent natural occurring concentrations rather than being a result of past discharges to the pond. Additionally, this alternative's ability to meet ARARs and its ranking is based on the level of radionuclides being below background concentrations. Implementation of Alternative 1, however, is contingent upon confirming that levels of radium in the pond sediments do in fact represent naturally occurring concentrations. This will be accomplished through the performance of a sampling and analysis program with the risk being re-assessed based on the new data. If, after evaluation of the analytical results against naturally occurring concentration levels and performance of the risk assessment, radium levels are found to be above naturally occurring concentrations or above acceptable risk based levels, the preferred alternative will be Alternative 3a. Although Alternative 3a is not ranked the highest among the alternatives considered, the alternative represents the most permanent solution to the site contamination problem and is the most cost-effective. For the TSF-07 site, other alternatives result in similar rankings to Alternative 3a and represent a lower cost. However, the selection of Alternative 3a promotes consistency with previous removal actions at Test Area North and consolidation of the low-level radionuclide-contaminated soil/sediments in a centralized repository. Long-term monitoring and institutional controls would not be required at this site because the contamination would be removed.

TSF-26 Comparative Cost Analysis (cont'd)

Alternative 4a, "Soil Excavation, In Situ Treatment of Tank Contents, and On-Site Soil Disposal"

Capital Costs	$5,231,509
O&M* Costs	$869,240
Total Costs	$6,100,749

Alternative 4b, "Soil Excavation, In Situ Treatment of Tank Contents, and Off-Site Soil Disposal"

Capital Costs	$7,963,823
O&M* Costs	$869,240
Total Costs	$8,833,063

Alternative 5a, "Soil Excavation, In Situ Vitrification of Tank Contents, and On-Site Soil Disposal"

Capital Costs	$12,705,500
O&M* Costs	$869,240
Total Costs	$13,574,740

Alternative 5b, "Soil Excavaton, In Situ Vitrification of Tank Contents, and Off-Site Soil Disposal"

Capital Costs	$15,411,792
O&M* Costs	$869,240
Total Costs	$16,281,032

In addition, studies are under way to determine the status of the TSF-07 site as potentially being located in a 100-year flood plain. The results of the studies may indicate that construction of an engineered barrier may not be an appropriate alternative for the site if it is determined to be located in a 100-year flood plain. If it is determined that TSF-07 is located in the flood plain, additional engineering controls such as levees and diversions would be required to meet siting requirements.

Nonradionuclide-Contaminated Soils/Sediments Release Sites

The preferred alternative for the WRRTF Burn Pits (WRRTF-01) is **Alternative 1, "Limited action."** This alternative would be easily implementable, would not impact worker health and safety, and would achieve remedial action objectives. The site presents no unacceptable risk for current and future workers. The contamination in the WRRTF Burn Pits is isolated and is covered with clean soils. In addition, the site presents no unacceptable risk to a hypothetical future resident because existing institutional controls would be maintained for a period of at least 100 years followed by land-use restrictions that would prevent development. The decision to employ Alternative 1 would be reviewed every 5 years to ensure the validity of the decision over time and to evaluate the results of monitoring activities. Because contamination would be left in place under this alternative, monitoring to ensure that the soil above the pits remains intact would be necessary to identify potential changes in site conditions.

The preferred alternative for the Technical Support Facility Burn Pits (TSF-03) also is Alternative 1. This alternative would be easily implementable, would not impact worker health and safety, and would achieve remedial action objectives. The site presents no unacceptable risk for current and future workers. The contamination in the Technical Support Facility Burn Pit is covered with clean soils. In addition, the site presents no unacceptable risk to a hypothetical future resident because existing institutional controls would be maintained for a period of at least 100 years followed by land-use restrictions that would prevent development. The decision to employ Alternative 1 would be reviewed every 5 years to ensure the validity of the decision over time and to evaluate the results of monitoring activities. Because contamination would be left in place under this alternative, monitoring to ensure that the soil above the pits remains intact would be necessary to identify potential changes in site conditions.

The preferred alternative for the Mercury Spill Area (TSF-08) is **Alternative 3, "Excavation and Off-Site Disposal".** Although ranked equally with Alternative 1, "Limited Action", Alternative 3 provides a more permanent action since the contaminated soils would be removed from the site. Additionally, long term monitoring and institutional controls would not be required because the contamination would be removed.

The preferred alternative for the Diesel Fuel Leak (WRRTF-13) is **Alternative 1. "Limited Action."** This alternative would be easily implementable, would not impact worker health and safety, and would achieve remedial action objectives. The site presents no unacceptable risk for current workers, future workers, or to a hypothetical future resident because existing institutional controls would be maintained for a period of at least 100 years. The decision to employ Alternative 1 would be reviewed every 5 years to ensure the validity of the decision over time and to evaluate the results of monitoring activities. Contamination will be left in place so monitoring will be required.

Tank Sites

The preferred alternative for the V-Tank Contents and Contaminated Soils (TSF-09/18) is **Alternative 4, "In Situ Vitrification of Tank Contents and Soil Within the Treatment Area."** This preference is dependent on the successful completion of an ongoing **Treatability Study (TS)** for this technology. This alternative is the only alternative that will comply with ARARs, ecept as noted on Table 5. This site would not produce an unacceptable risk to future workers for a hypothetical future resident because exsting institutional controls would be maintained for a period of a least 100 years followed by land-use restrictions that would prevent development. Additionally, permanent markers will be installed at the site documenting that hazardous waste is present. If the TS for the vitrification technology determines that this technology is not implementable for this application, then Alternative 3a, "Soil Excavation, In Situ Treatment (Grouting) of Tank Contents and On-Site Soil Disposal" would be the preferred alternative. This technology is also being evaluated with an ongoing TS. The decision to employ in situ vitrification or in situ grouting while leaving the residual material in place would be reviewed every 5 years to ensure the validity of the decision over time and to evaluate the results of monitoring activities. Because contamination would be left in place, monitoring would be necessary to identify potential changes in site conditions. As the contents of the tanks are contaminated with uranium-235, a fissile material, further evaluation will be performed prior to any remediation.

The preferred alternative for the remedial action of the PM-2A Tanks and Contaminated Soils (TSF-26) is **Alternative 4a, "Soil Excavation, In Situ Treatment of Tank Contents, and On-Site Soil Disposal."** The alternative ranked highest technically among the alternatives considered along with Alternative 2a, "Soil Excavation, Tank Removal, and On-Site Treatment and Disposal." However, Alternative 2a would require the removal and on-site treatment of the tank contents, which represents a substantially higher risk to workers than Alternative 4a. Only the cost of Alternative 1 was lower than Alternative 4a. Disposal of the contaminated soils on-site is consistent with previous removal actions at Test Area North and because the tank contents would not be removed for treatment, worker health and safety would be promoted. The site would present unacceptable risk to future workers or a hypothetical future resident, however existing institutional controls would be maintained for a period of at least 100 years followed by land-use restrictions that would prevent development and control exposure to current workers. Additionally, permanent markers would be installed at the site documenting that hazardous waste is present. The decision to implement Alternative 4a would be reviewed every 5 years to ensure the validity of the decision over time and to evaluate the results of monitoring activities. Because contamination would be left in place under this alternative, monitoring would be necessary to identify potential changes in site conditions.

Proposed No Action Sites

The agencies propose that no further action be taken under CERCLA at the sites described below in this section. A brief description of the agencies' recommendation is included in each of the following paragraphs. (The locations of the sites are indicated in Figures 1-1 through 1-4 of the Operable Unit 1-10 Comprehensive RI/FS report.) For those sites that have contamination left in place but do not present unacceptable risk to human health and the environment, a permanent marker will be installed identifying the site.

INEEL Information Repositories

INEEL Technical Library
DOE-ID Public Reading Room
1776 Science Center Drive
Idaho Falls, ID 83415
(208) 526-1185

Shoshone-Bannock Library
HRDC Building
Bannock and Pima Streets
Fort Hall, ID 83202
(208) 238-3882

University of Idaho Library
University of Idaho Campus
Moscow, ID 83843
(208) 885-6344

OU/Site	Title	Supporting Document	Comments
No OU Assigned			
IET-02	IET Burial Pit NE of IET	FFA/CO	No historical disposal of hazardous materials at site.
IET-08	IET Septic Tank and Filter Bed	FFA/CO	No evidence of hazardous material disposal at this site.
LOFT-04	LOFT Injection Well	FFA/CO	No evidence of hazardous material disposal at this site.
LOFT-04	LOFT Injection Well	FFA/CO	No evidence of hazardous material disposal at this site.
LOFT-09	LOFT Septic Tank and Drain Field	FFA/CO	No evidence of hazardous material disposal at this site.
LOFT-13	LOFT Dry Well	FFA/CO	No evidence of hazardous material disposal at this site.
SMC-01	SMC Septic Tank and Drain Field	FFA/CO	No evidence of hazardous material disposal at this site.
TSF-16	TSF Brine Pit N of TAN-608	FFA/CO	No evidence of hazardous material disposal at this site.
TSF-30	TSF Septic Tank E of TAN-602	FFA/CO	No evidence of hazardous material disposal at this site.
TSF-34	Fuel Tank S of TAN-607	FFA/CO	Site remediated in 1958. No source of contamination remains at this site.
TSF-35	Acid Sump SE of TAN-609	FFA/CO	No evidence of hazardous material disposal at this site.
TSF-40	Rubble Pile Near TAN	FFA/CO	No evidence of hazardous material disposal at this site.
TSF-41	Scrap Yard South	FFA/CO	No evidence of hazardous material disposal at this site.
WRRTF-07	WRRTF Septic Tank and Sand Filters	FFA/CO	No evidence of hazardous material disposal at this site.
OU 1-01			
LOFT-07	LOFT Foam Solution Tank	Track 2	Contamination is not sufficient to cause unacceptable risk to human health or environment.
TSF-11	TSF Three Clarifiers Pits E of TAN-604	RI/FS	Contamination is not sufficient to cause unacceptable risk to human health or environment.
TSF-42	TAN-607-A Room 161 Contaminated Pipe	Track 1	Contamination is fixed and no pathway exists for exposure.
TSF-43	RPSSA Buildings 647/648 and Pads	RI/FS	TSF-43 is an INEEL RCRA Interim Storage Facility and final closure of the facility will meet CERCLA RAOs.
OU 1-03			
TSF-02	TSF Service Station Spill	Track 2	Contamination is not sufficient to cause unacceptable risk to human health or environment.
TSF-38	TSF Bottle Site	Track 2	Contamination is not sufficient to cause unacceptable risk to human health or environment.
OU 1-04			
LOFT-02	LOFT Disposal Pond	Track 2	Contamination is not sufficient to cause unacceptable risk to human health or environment.
TSF-12	TSF Acid Neutralization Sump N of TAN-602	Track 2	No exposure pathway exists for this site.

OU/Site	Title	Supporting Document	Comments
OU 1-04			
TSF-17	TSF Two Acid Neutralization Pits N of TAN-649	Track 2	Site remediated in 1993. No source of contamination remains at this site.
TSF-19	TSF Caustics Tank V-4 S of TAN 616	Track 2	No source of contamination remains at this site.
TSF-20	TSF Two Neutralization Pits N of TAN-607	Track 2	Site remediated in 1993. No source of contamination remains at this site.
TSF-29	TSF Acid Pond	RI/FS	Contamination is not sufficient to cause unacceptable risk to human health or environment.
TSF-31	TSF Acid Pit W of TAN-647	Track 2	No evidence of hazardous material disposal at this site.
OU 1-05			
IET-04	IET Stack Rubble Site	Track 2	Contamination is buried greater than 15 feet below surface and no exposure pathway exist for this site.
IET-07	IET Hot Waste Tank	Track 2	Site remediated in 1985. No source of contamination remains at this site.
TSF-10	Drainage Pond	RI/FS	Contamination is not sufficient to cause unacceptable risk to human health or environment.
TSF-21	TSF IET Valve Pit	RI/FS	Contamination is not sufficient to cause unacceptable risk to human health or environment.
WRRTF-04	WRRTF Radioactive Liquid Waste Tank	Track 2	Site remediated in 1993. No source of contamination remains at this site.
OU 1-08			
TSF-22	TSF Railroad Turntable	RI/FS	Contamination is not sufficient to cause unacceptable risk to human health or environment.
TSF-28	TSF Sewage Treatment Plant and Sludge Drying Beds	Track 2	Contamination is not sufficient to cause unacceptable risk to human health or environment.
WRRTF-05	WRRTF Injection Well	RI/FS	Contamination is not sufficient to cause unacceptable risk to human health or environment.
OU 1-09			
TSF-36	TSF TAN-603 French Drain	RI/FS	Contamination is not sufficient to cause unacceptable risk to human health or environment.
TSF-37	TSF Contaminated Well Water Spill	RI/FS	Contamination is not sufficient to cause unacceptable risk to human health or environment.
OU 1-10			
TSF-27	TSF Paint Shop Drain	Track 1	Site is designated as a Land Disposal Unit (LDU). Contamination is not sufficient to cause unacceptable risk to human health or environment.
New Sites			
LOFT-16	LOFT Landfill NE of LOFT-02 Drainage Pond	Track 1	No evidence of hazardous material disposal at this site.
LOFT-12	LOFT N Transformer Yard PCB Spill and Soil Site	RI/FS	Site remediated in 1994. Residual contamination is not sufficient to cause unacceptable risk to human health or environment
TSF-44	TSF Diesel Fuel Pipeline Leak NW of TAN/TSF-604	Track 1	Site remediated after each (3) release. No source of contamination remains at this site.
TSF-45	AEC Burial Pit	Track 1	No evidence of hazardous material disposal at this site.

Public Meeting Locations

Idaho Falls

February 23, 1998
Shilo Inn

Boise

February 24, 1998
Boise Public Library

Moscow

February 26, 1998
University Inn

6:30 pm - Availability session with project managers

7 pm - Public meeting begins

Briefings for other communities can be arranged by calling the INEEL's toll-free number at (800) 708-2680.

OU/Site	Title	Supporting Document	Comments
No Number	IET Pond and Ditch W of IET	New Site Evaluation	After evaluation, determined not to be an inactive waste site.
No Number	IET Gravel Pit	New Site Evaluation	After evaluation, determined not to be an inactive waste site.
No Number	IET Burn Pit E of IET	New Site Evaluation	After evaluation, determined not to be an inactive waste site.
No Number	IET Burn Pit NW of LOFT	New Site Evaluation	After evaluation, determined not to be an inactive waste site.
No Number	TSF Burn Pit II SW of the TSF-05 Injection Well	New Site Evaluation	After evaluation, determined not to be an inactive waste site.
No Number	TSF Radioactive Spills on Bear Blvd W of TAN-607	New Site Evaluation	After evaluation, determined not to be an inactive waste site.
No Number	Radioactive Spill 1 mile S of TAN on Lincoln Blvd	New Site Evaluation	After evaluation, determined not to be an inactive waste site.
No Number	Sand Piles S of TSF and SW of WRRTF	New Site Evaluation	After evaluation, determined not to be an inactive waste site.
No Number	WRRTF Transite Area	New Site Evaluation	After evaluation, determined not to be an inactive waste site.
No Number	Broken Pipe in Berm E of TAN-633	New Site Evaluation	After evaluation, determined not to be an inactive waste site.
No Number	Buried Asbestos Behind the Hanger at SMC	New Site Evaluation	After evaluation, determined not to be an inactive waste site.

Public Involvement

After you review this plan, you are encouraged to contact representatives of the DOE, the INEEL Community Relations Plan office, the State of Idaho, or the EPA Region 10 Office. You may wish to ask questions, request a briefing, or seek additional background information about this proposed plan. Public meetings will be held at the locations listed in the margin.

From 6:30 to 7 p.m., representatives from the agencies will be available to informally discuss any concerns and issues related to this proposed plan before the meeting begins. At 7 p.m., the agencies will make a presentation, followed by a question-and-answer session and an opportunity to provide written and verbal comments.

A court reporter will record public comments received and will prepare a transcript of the public meetings. Transcripts from all three public meetings will be available to the public in the Administrative Record Section (under Operable Unit 1-10) of the INEEL Information Repositories listed on page 36.

Comments continued. Attach additional pages if necessary.

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Please return this form by March 18th!

What's Your Opinion?

The agencies want and need to hear from you to effectively decide what action to take at the Test Area North.*

Comments: _____

(Continued on reverse)

** If you want a copy of the Record of Decision and Responsiveness Summary, make sure your mailing label shown below is correct.*

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